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The Halford Oration.¹

SURGERY IN AUSTRALIA: SOME CONTRASTS AND COMPARISONS.

By SIR HENRY NEWLAND, C.B.E., M.S., F.R.C.S.
(England), F.R.A.C.S.,
Honorary Surgeon, Adelaide Hospital, Adelaide.

THE fact that on this continent the most modern surgery of today is being practised while the rude surgery of the stone age still exists, appeals, I venture to think, to the imagination. In the wilds of Australia the untutored native applies his primitive methods, while above him perchance soars the "flying surgeon" with all the resources of modern

surgery at the command of a rich experience. It is true that the primitive operative surgery of the native is ritualistic as a rule rather than therapeutic, but this does not rob it of its interest. The performance of the operation of circumcision, so generally practised in Australia, has some unique features, the most singular of which is the nature of the operating table used by the natives in some parts of Australia. Some of the tribe form themselves into the semblance of a table, which rather resembles a Rugby football scrum on a small scale. The patient is placed and held on this improvised table, and the operator with his stone knife amputates the foreskin. A modern operating table, with its numerous fittings for different operative procedures, offers a pleasing contrast, that is, if the sight of an operating table can ever be pleasing to a lay audience.

¹ Delivered at Canberra, November 27, 1931.

The instruments old and new offer the contrast of steel and stone.

Another operation, very commonly practised by the natives, is that known as subincision, which consists in the division of the floor of the urethra from the urethral outlet as far back as the scrotum. This operation is not contraceptive in intention, but is rather a badge of full manhood.

Venesection or blood-letting is frequently done to procure blood for ritualistic purposes and not for the relief of blood pressure, of which human ill the native, happy man, is ignorant. One method employed is very like that in use today. Another consists in stabbing the subincised urethra with a sharp mulga stick, a sharpened bone or a sharp stone. A sharply pointed bone or mulga stick is used for letting out the pus which after a time forms around and loosens a splinter or thorn which has entered the sole of the foot. The skin on the front of the chest is commonly incised transversely, and the more pronounced the scars are and the more keloid their character, the more are they prized. Every surgeon knows that keloid is very apt to develop in the scars of burns on the front of the thorax, and the native, too, seems to be aware of that clinical fact.

The primitive races in many parts of the world have practised trephining with the object of casting out evil spirits. I have no evidence that the operation has been performed by the native Australian. Mrs. Langloh Parker, in "The Euahlayi Tribe", mentions certain native surgical arts.

Snake bite they cure by sucking the wound and cauterizing it with a fire stick. They say they suck out the young snakes which have been injected into the bitten person.

The bleeding of wounds they stanch with the down of birds.

In modern surgery sterilized cotton wool is used for a similar purpose.

Mrs. Langloh Parker writes:

After setting a broken limb they put grass and bark round it, then bind it up.

This procedure may be likened to the ancient Egyptian procedure mentioned in a recent article in the *Saturday Review*:

From the mummified remains of a boy about nineteen years, who died about 3,000 years ago, we know how fractures were treated in those times. Splints of dry rushes and strong bands were used, and so effective were they that the healing was almost perfect.

For swollen eyes the natives warm the leaves of certain trees and hold them to the affected parts or make an infusion of budtha leaves and bathe the eyes in it.

Beefwood gum is used for reducing swollen joints. A hole is made in the ground, some coals put in it, on them some beefwood leaves, on top of them the gum, over the hole is put enough bark to cover it, with a piece cut out of it the size of the swollen joint to be steamed, which joint is held over this hole.

With this very brief survey of primitive surgery in Australia I pass on to consider some aspects of surgery in the era before Lister. One of the surgical giants of those days was Sir James Paget. He was a gifted anatomist and physiologist, a distinguished pathologist, an eminent surgeon, and a

great orator. Lastly, he was a man of the most lofty principles and ideals. His career and the beauty of his character persuade me to quote the words engraved on the Scottish War Memorial in Edinburgh:

The whole earth is the tomb of heroic men. Their story is not graven only in stone over their clay, but abides everywhere as an invisible symbol woven into the stuff of other men's lives.

Paget no doubt influenced Halford and thus indirectly influenced surgery in Australia. When it was decided to found a medical school in connexion with the University of Melbourne, the Council of the University very wisely placed themselves in communication with Professor Paget, of Saint Bartholomew's Hospital, London, probably at the suggestion of Dr. Brownless, an old friend of Paget. Paget undertook to assist in the selection of a professor of general and comparative anatomy, physiology and pathology. You will note that in those days it was considered possible for one man alone to teach subjects which today occupy the attention of at least three professors. Paget recommended that one diploma should be granted as evidence of knowledge of all the branches of medicine to be obtained by all, whether they were to be engaged in general or special practice. If deemed advisable to meet the case of those intending to practise exclusively or chiefly in one department of the profession, as physicians, surgeons or obstetricians, he suggested that an additional examination be held on subjects appropriate to the department chosen and that the passing of such examination not less than two years after obtaining the first diploma should confer the right to some distinct title. This suggestion was adopted, and the higher degrees in medicine and surgery in the Australasian universities are still in the main conferred after passing an examination not less than two years after graduation. The procedure when a young man in Paget's day decided on medicine as a career was very different from that of today. The initial step was to apprentice him to a medical practitioner. Paget himself was apprenticed to Mr. Charles Costerton, an active, energetic and well educated practitioner in Yarmouth. In the ordinary manner of the time the deed of apprenticeship to learn the art and mystery of a surgeon and apothecary was drawn up, and after the payment of a premium of one hundred guineas, was duly executed on March 9, 1830. The term of apprenticeship was five years, but at the end of four and a half years Paget was allowed to go to hospital study in London. Sir James Paget writes as follows regarding the advantages of an apprenticeship which, he says, were, or at least might be, far greater than is now commonly supposed:

Many things of great utility in after-life could be thoroughly learned, things of which the ignorance is now a frequent hindrance to success, such as dispensing and a practical knowledge of medicines and the modes of making them, account keeping, the businesslike habits needed for practice, care and neatness and cleanliness in all minor surgery. Besides, in most cases, as in my own, the elements of anatomy could be slowly learned; there

was time for reading and for natural history, or any branch of science by which the habit of observing might be gained, and there was ample opportunity for observation in practice without being confused in a crowd of cases, in which it is for a student equally difficult either to study the whole or to make a good choice.

He writes in continuation:

I saw also many operations done by different surgeons in the town, for I was generally invited to them, and some were well and some very ill done, and my master, who had good operative skill, taught me all he could in his criticism of them.

As we shall see later on, the recent appointment of surgical assistants at the Melbourne Hospital, in pursuance of the policy of the Royal Australasian College of Surgeons, revives in a different form the old custom of apprenticeship as a way to a knowledge of the craft.

On May 3, 1843, Paget was appointed Lecturer on Physiology at Saint Bartholomew's Hospital. One of those who gave him a testimonial and who, with Paget, subsequently chose Halford for the professorship in Melbourne, was Professor (later Sir) Richard Owen. In 1847 Paget was elected Professor of Anatomy and Surgery to the Royal College of Surgeons, and in February of that year he was elected Assistant Surgeon to Saint Bartholomew's Hospital. In May, 1849, after seven years' strenuous work, he finished the pathological catalogue of the College of Surgeons' Museum. In 1851 he was elected a Fellow of the Royal Society. On the occasion of this election Sir Richard Owen said of him that he had his choice, either to be the first physiologist in Europe or to have the first surgical practice in London with a baronetcy. As an instance of the difference between surgery then and now, it is to be noted that Paget had been qualified for eleven years before he did an operation in private practice.

Though, as time went on, the interests of pathology and the demands of practice rendered physiological inquiry less and less possible for him, he lost no opportunity of showing his interest in physiological problems and of advancing or protecting physiological science. And when the Physiological Society came into existence, it made him one of its very few honorary members as a token that it regarded him as a physiologist indeed. When Paget gave his lectures on physiology (which Halford may have attended), the only physiologist devoting himself wholly to his subject was William Sharpey. This specialization, according to Lord Moynihan, led in the end to the estrangement of physiology from modern medicine.

I have given this short account of the earlier part of Sir James Paget's splendid career, in the first place because it enables us to understand his capacity for making a wise choice of a Professor of Anatomy, Physiology and Pathology for the new medical school in the University of Melbourne, and in the second place because, being the man he was, he could not have failed to make an enduring impression on Halford, as he did on so many others. How wise Paget was in his choice is shown by

Halford's successful career in Australia and by the stimulating and inspiring influence which Sir Richard Stawell says he exercised. Paget's active life as an operating surgeon began in what was in all truth the septic era and ended in the era of antiseptics. In his view not all of the credit for the remarkable results which followed the introduction of the antiseptic system was due to Lister. If it was not altogether true as regards British hospitals, it was certainly the case in foreign. In a discussion on antiseptic surgery in London in 1879 Sir Thomas Smith said:

For a good test of the value of the system we should go to an hospital where pyæmia, hospital gangrene and erysipelas are not occasional visitants, but have acquired a right of domicile and never wholly leave the building.

An account of such a hospital is given us by Professor Nussbaum in his recent publication on Lister's antiseptic dressing. He tells us of his clinical hospital at Munich, that pyæmia always flourished there and that since 1872 hospital gangrene has been a constant, though unwelcome guest, so that in one year 80% of all wounds were attacked. He speaks of erysipelas and hospital gangrene as so prevalent in the building that it was the exception for a patient to escape an attack. The hospital was a veritable pest-house. After every kind of dressing had been tried without any markedly beneficial effect, on January 1, 1875, Lister's treatment was adopted for every wound in the hospital, great and small, and from that day, says Professor Nussbaum, hospital gangrene, pyæmia and erysipelas were seen no more. "As it appears to me", said Sir Thomas Smith, "this was a crucial test of the powers of Listerism." In those dread days the majority of all operations ended fatally. Even the operation of circumcision might lead to a fatal attack of erysipelas or septicæmia, whereas the palæolithic surgeon in Australia at that time did the operation with impunity.

Earlier in the century John Bell, of Edinburgh, wrote as follows of hospital gangrene:

When it rages in a great hospital it is like a plague; few who are seized with it can escape. There is no hospital, however small, airy or well regulated, where this epidemic ulcer is not to be found at times. Then no operation dare be performed. Every cure stands still, every wound becomes a sore, and every sore is apt to run into gangrene. It has been named the hospital gangrene; and such were its ravages in the Hôtel Dieu of Paris (that great storehouse of corruption and disease) that the surgeons did not dare to call it by its true name; they called it the rottenness, foulness, sloughing of the sore. The word hospital gangrene they durst not pronounce, for it sounded like a death knell; at the hearing of that ominous word the patients gave themselves up for lost.

These two quotations serve to show the surgical world into which Lister was born. Before antiseptic surgery the amputation of a leg or arm was a frequent operation, for nearly all compound fractures necessitated amputation. In Lister's own statistics of amputation between the years 1864 and 1866, 45% of the patients died. It is one of the romances of surgery that Professor Anderson, of Glasgow, during a walk with Lister, mentioned

casually the researches of Pasteur which dealt with the questions of fermentation and putrefaction. Pasteur's papers made an instant appeal to Lister, for his great mind grasped the relevance of the discoveries, and he realized almost intuitively their bearing on surgical practice. Pasteur had demonstrated that all forms of fermentation were due to the presence and growth of minute organisms and that putrefaction was essentially the same process. Pasteur found that if care were taken to exclude these organisms from the liquids in which these changes occurred, no fermentation took place. If the organisms were present in the liquid, their activities could be stopped by heat. Lister observed that when an occasional wound healed without pus formation there was no putrefaction. He conceived the idea that pus arose from putrefaction. He realized that Pasteur's heat treatment could not be applied to living human tissues (you cannot boil your patient), and instead he tried chemical antiseptics. Lister's first experiment was on a compound fracture. He had observed the fact that a simple fracture was not accompanied by the formation of pus and that a compound fracture was. Both were wounds, but one was exposed to the air and the other was not. His first attempt was made in March, 1865. The result was a failure, owing, Lister said, to improper management. In August of the same year he again applied the antiseptic method to a compound fracture, painting the wound with pure carbolic acid and dressing it with cloths dipped in diluted acid. This case justified the faith that was in him, for the wound healed without infection. Lister states that prior to the introduction of his antiseptic system his two wards in the Royal Glasgow Infirmary were among the unhealthiest in the hospital, and he says:

I have felt ashamed when recording the results of my practice to have to so often allude to hospital gangrene or pyæmia, . . . whenever all or nearly all my beds contained cases with open sores these grievous complications were pretty sure to show themselves; but since the antiseptic treatment has been brought into full operation, and wounds and abscesses no longer poison the atmosphere with putrid exhalations, my wards have completely changed their character, so that in the last nine months not a single case of pyæmia, hospital gangrene or erysipelas has occurred in them.

That prior to the introduction of Lister's antiseptic system into Australia surgical infections prevailed in Australian hospitals is shown by Sir James Barrett's account:

The chief event of the period 1879-1883 was the introduction of the antiseptic system of Lister. Wounds and injuries in the main prior to 1880 were treated without any regard to antiseptics. Adumbrations of Lister's methods were reaching Australia, but the method was still regarded as theoretical and unproven. Wounds were poulticed. Laudable pus was still regarded as a desirable element in healing, and the discharges were often offensive, and sometimes most objectionable in the wards. Septicæmia and erysipelas . . . were abundant. Whilst a student, I do not recollect a single abdominal perforating injury, or operation wound, which did not end fatally. All sorts of precautions were taken. Rooms were painted and scrubbed, ventilation was attended to; in fact everything was done except the things which we now know were essential. Surgeons kept operating coats of which they

were proud, as they were a mass of blood stains. Gloves were unknown, and the instruments were often held in the mouth. Whilst septicæmia was rife, foul wounds abundant, and deaths only too numerous, there passed through Melbourne a young man who had been house surgeon to Lister, and who advised us (i.e., the resident staff) to flush out foul wounds with a mixture of methylated spirit and carbolic acid of suitable strength. He gave us details of Lister's methods. We took Dr. B. Newmarch's advice, and acted at once. Though the methods would be thought crude today, the effect was magical, and the change was one from night to day.

The dirty old operating coats, the blood stains on which were, as Sir James says, a source of pride to the wearer, have almost passed into the limbo of forgotten things. The surgeon now cleanses his skin and operates arrayed in spotless linen, and the prophecy has come to pass:

He shall put on the holy linen coat and he shall have the linen breeches upon his flesh, and shall be girded with a linen girdle, and with the linen mitre shall he be attired; these are holy garments, therefore shall he wash his flesh in water, and so put them on.

Lord Moynihan summarizes Lister's services to mankind in the following eloquent words:

Lister is in my judgement the greatest material benefactor the world has ever known. Lister created a new world for surgery. The art of surgery has existed from the very birth of time. The oldest human remains show that the craft of surgeons had been exercised upon them. The manipulative skill of surgeons, their courage, rapidity and dexterity had excited the wonder and admiration of men for centuries. Yet no man ever practised his craft on any case, however simple, without terror and dismay, without foreboding, too often justified by the terrible result. Lister's gentle hand lifted from men the heaviest load of suffering and sorrow they could have to bear, and opened the gates of mercy and compassion to mankind.

An eminent French surgeon of Lister's time, in speaking of the dangers of even the slightest wound, said:

A pin prick is a door open to death.

Lister perfected the ancient methods of surgery, he created opportunities for the performance of new operations, so complex, so intricate, so miraculous as to be beyond the scope of the most adventurous imaginations of fifty years ago. Strongholds of disease, hitherto impregnable, surrendered to his irresistible advance. Our surgical work today is the creation of his mind.

Most can raise the flowers now
For all have got the seed.

In Hamilton Russell, of Melbourne, an old house surgeon of Lister, Australia has a disciple distinguished for his research in surgery.

One of the first extensions of operative surgery that Lister's discoveries made possible was into the abdomen, but it was several years before it became common practice to remove the appendix. Indeed, in the late fifties of the last century a case recorded in *The Australian Medical Journal* shows that the rôle played by an acutely inflamed and perforated appendix in causing fatal peritonitis was not then recognized. Lister's researches have made the operation for the removal of the appendix at the proper time an absolutely safe one. In ninety-nine cases out of one hundred a patient in good physical condition is safe if he is operated upon within the first twelve hours. A survey of 5,000 cases in America shows that one patient in thirty-nine died when operation was performed within twenty-four

hours of the development of the symptoms, one in seventeen died when it was performed within forty-eight hours, one in thirteen when it was performed within seventy-two hours, and one in nine when it was performed after seventy-two hours. In 6,444 cases of appendicitis which occurred in England, the United States of America and in Australia, the death rate amounted to 5.4%. The death rate today in cases of appendicitis operated upon on the third day is the same as it was twenty years ago. Early operation is the only way to reduce the mortality, and unless the public acquires wisdom in this respect, no reduction may be expected. The rapid advance of operative surgery and its remarkable achievements, once Lister had pointed the way, were not foreseen by some of the most astute minds. Erichsen, in 1884, in his classical book on the "Science and Art of Surgery", makes no mention of operations on the heart. He wrote:

Operative surgery, like every other art, can be carried only to a certain definite point of excellence: . . . It cannot be perfected beyond certain attainable limits, . . . there cannot always be fresh fields for conquest by the knife, . . . there must be portions of the human frame that will ever be sacred from its intrusion, . . . at least in the surgeon's hand. That we have nearly, if not quite, reached those final limits there can be little question . . . The surgeon must in future be content to repeat those operations that have been inaugurated by the genius of his predecessors.

When those words were penned, the appendix era had hardly dawned, and the dramatic operations on the heart, lungs and brain, now so frequent, were yet to be introduced. It is easier to prophesy than to be right with regard to the future of surgery. Prior to the introduction of cardiac surgery the mortality of wounds of the heart and pericardium was 85%; only 15% of patients recovered. After the more adventurous surgeons began to operate on wounds of the heart and pericardium, the successes continued to increase, rising from 33% to 50%, and culminating in the Great War in a recovery rate of 75%. When a man is shot through the heart, to the lay mind it is equivalent to saying that he is as good as dead. This popular belief is based on the results of wounds of the heart caused by the old slow and round bullets. The modern conical bullet has been removed from the right cavity and also from the left cavity with complete recovery. After the missile has penetrated the heart it is possible for it to be carried in the blood stream to the main artery of a limb and to lodge there. A conical bullet has been successfully removed from its site of impaction in the main artery, both of the arm and the leg. Success has also attended the removal of a bullet from the great vein between the liver and the heart (inferior *vena cava*). Just as dramatic an achievement is the removal of a blood clot which has been washed from the place of formation and become impacted in the main artery going to the lung. These obstructive clots may form after any operation which confines a patient to bed, and account for the sudden deaths which in a dramatic way occur from time to time. Operations on calves

showed that such a clot could be removed with success. As a consequence of the application of this research to man, this operation has been successfully performed at least eight times. A surgeon who had had two successes of the kind, gives the following advice concerning the performance of the operation:

Do not be discouraged that in the course of the operation the patient appears to be dead . . . Experiments on animals show that the activity of the heart and lungs can be resumed even after cessation for three or four minutes.

Surgery in such circumstances is indeed an adventurous and exacting craft. The same brilliant results have been obtained in the surgery of the lung. The upper lobe of the left lung has been removed for a tumour, secondary to one growing in the small bone of the leg. The patient after this superb operation was alive and well eighteen months later.

Similar triumphs have been achieved in the surgery of the brain. The surgeon's knife, albeit in these days sometimes an electrical one, has intruded within the deepest recesses of the brain and carried healing. With the knowledge that the surgical advances of the last half century had shown the falsity of Erichsen's prophecy, it is curious that Lord Moynihan, the President of the Royal College of Surgeons of England, should also have ventured to foretell the future. After quoting:

Each age is a dream that is dying
Or one that is coming to birth.

He goes on to say:

In surgery we are approaching the end of one age and are already at the beginning of another. The present epoch began on 5th August, 1865, when Lister for the first time applied a carbolic acid dressing to a compound fracture. Lister's work for surgery made the old operation safe; it gave us the opportunity to invent a multitude of new and more extensive operations, it created hominal research [in which Moynihan himself excels] and it enlarged the scope and increased the practice of animal research. It has, therefore, enabled us in the pursuit of operative methods for the cure of visceral diseases above and below the diaphragm, to observe the condition of organs during life, to study disease in full career rather than at the end of a long and destructive journey, and little by little to discover and describe symptoms aroused and the signs produced by such diseases in earlier and still earlier stages.

He continues:

I have made the claim and I have been criticized for so doing, that surgery, in so far as its craft is concerned, has now almost reached its limit [the words are almost those of Erichsen]. The full fruit of Lister's work in relation to surgery has now been garnered. Almost every organ in the body has been made accessible to the surgeon; operations upon these organs can hardly be extended in the future; they are today performed with a degree of safety which, in the hands of the few great masters, can be little, if at all, surpassed . . . So long as the stomach or portions of the intestine must be removed for cancer, the gall-bladder attacked for stones, a lobe of the lung excised for a growth, the heart itself opened to remove a foreign body or closed after the infliction of a wound, the brain approached to deal with any of the diseases which may attack it, the operations practised can hardly be safer than they already are in the most expert hands today. The craft of surgery has in truth nearly reached its limit in respect both of range and of safety. We may find other and safer methods of dealing with disease; we may obtain earlier access to acute and malignant conditions; we may find that the application of radium to organs

accessible, but irremovable, may render unnecessary the mutilations of surgery, but we can surely never hope to see the craft of surgery made much more perfect than it is today. We are at the end of a chapter.

With much of this I am in agreement, particularly in reference to the mutilations of surgery, but I decline to believe that "we can surely never hope to see the craft of surgery made much more perfect than it is today". It may be accepted that surgery today, as an operative craft, appears to be nearly perfect, but history shows that the technique of the arts and crafts changes, and surgery is not likely to be an exception in this respect. Fifty years hence Lord Moynihan's prophecy will doubtless be as mistaken as that of Erichsen about fifty years ago.

As the years pass, we cannot be blind to the fact that surgical craft and surgical science have made great strides. The delicacy of technique of the average abdominal surgeon is immeasurably superior to that of his predecessor of twenty-five years ago. The fact that we have no knowledge of the future, no vision of the direction in which craftsmanship may advance, does not justify us in predicting that no change for the better can or will take place. Unforeseen technical advances in collateral sciences can often be adapted for use in surgery.

An electric loop has made possible the removal of certain brain tumours which a few years back were considered inoperable, as their removal was liable to be complicated by uncontrollable hæmorrhage. It was chance which led the greatest living neurological surgeon to apply the loop to his operations on the brain, and I have already stated that by chance Lister's attention was directed to Pasteur's researches on fermentation.

We need not suppose that the technical side of surgery has reached finality. Every thoughtful surgeon is aware that his science is an ephemeral thing, bound to give way to less violent measures with the advance of knowledge. It is a welcome portent that such realization is becoming more general on all sides. The present tendency to restrict the extent of surgical intervention is good, for the safety and ease with which the surgeon has learned to remove organs, or large portions of them, has sometimes led to too radical an outlook.

Surgery as a Profession and a Craft.

I cannot do better than quote the words of Lord Moynihan, the President of the Royal College of Surgeons in England, in regard to surgery as a profession and a craft:

Surgery is not only a craft, though craftsmanship of a high order is essential. It is a profession to which a man should feel not only complete devotion, but also a sense of special dedication. Its practice requires the most flawless integrity in thought and act. It is not lightly to be undertaken by any who have not surrendered to an iron discipline of training by the masters of their art. No one acquainted with the truth can deny that far too many operations nowadays are done by those who, having perhaps a measure of success in the trivial case (none are trivial to the patient), rashly embark upon procedures which they are not fully competent to undertake. And the good repute of surgery is wounded.

Lister's discovery indeed made surgery safe, but it was powerless to bring wisdom to the operator. Lord Moynihan goes on to say:

Surgery today is being practised by too many light-hearted and incompetent surgeons, who have neither sought

in due service to acquire a mastery of their craft nor have learned from the experience gained by long association in hospital work, when an operation should be done, when left undone, how made safe, how made to fall lightly upon a patient already afflicted, it may be by mental no less than by physical distress.

He insists:

Surgery is not only a matter of operating skilfully. It must engage in its service qualities of mind and of heart that raise it to the very highest pinnacle of human endeavour. A patient can offer you no higher tribute than to entrust you with his life and his health, and by implication with the happiness of all his family. To be worthy of this trust we must submit for a lifetime to the constant discipline of unwearied effort in the search of knowledge, and of most reverent devotion to every detail in every operation that we perform.

This insistence on the attributes which go to the making of a surgeon did not obtain before the time of John Hunter. Sir James Paget possessed such qualities in a superlative degree, and we can be sure that he would seek some such when he, with Owen, was entrusted with the delicate task of making the selection of the first Professor of Anatomy, Physiology and Pathology in the University of Melbourne. History shows that the choice of Halford was a wise one, and its effect for good incalculable. Too much care cannot be taken to select men of the highest character and with impressive personalities to hold the professorships in the medical schools of Australian universities. They are brought into contact with medical students when at the most impressionable and plastic period of their medical course, and so can make an indelible impression for good or ill. Sir James Paget gives to John Hunter the credit for the elevation of the surgeon to the level he occupied in Paget's time.

Mark, now, what Hunter did for surgeons. Before his time they held a subordinate place in the medical profession. A few, with rare ability, had held good rank, but generally they were inferior to the physicians. And justly so; for the physicians had not only better knowledge of their proper calling, but a far larger number of them were men of higher culture, well educated gentlemen, and the associates of gentlemen. Besides, they were the chief teachers of all the medical sciences, the teachers even of anatomy to the surgeons. After the time of Hunter we may trace a well marked change. Physicians worthily maintained their rank, as they do now; but surgeons rose to it, and in the lessons of Hunter surgery gratefully repaid medicine for the teachings of a century. Following Hunter in the pursuit of science, surgeons soon became the chief anatomists, equal as physiologists and pathologists, and they gained entrance into the ranks of the most educated class. Yes, Hunter did more than anyone to make us gentlemen. And the lesson of this fact is plain and emphatic, for it was not by force or social skill, by money or any external advantage that he did this. The vast influence that he exercised on surgery and surgeons was the outcome of the scientific mind.

What follows? Surely that if we desire to maintain the rank of gentlemen, to hold this highest prize of our profession, we must do so by the highest scientific culture to which we can attain. And to this we are bound, not for our advancement alone, but by every motive of the plainest duty.

The scientific mind, so adumbrated by Paget, was possessed in no mean degree by Halford, and Sir Richard Stawell has testified to the influence he exercised.

The Education of the Surgeon.

In the universities of Adelaide, Melbourne and Sydney, the medical student on graduation has the degrees of bachelor of medicine and bachelor of surgery conferred upon him. When Halford entered upon his professorship in the University of Melbourne this was not the case. The power to give a degree in surgery was not granted until 1875. Today the course of study for the two degrees goes on concurrently, and the student who aspires to be a surgeon, gets his grounding in common with all medical students in anatomy and physiology. From the time of John Hunter a very sound knowledge of anatomy has always been demanded of the surgeon. Physiology, too, has always been a subject in the primary examination for the fellowship of the Royal College of Surgeons of England, but it has hitherto never quite taken the prominent place as a foundation of surgery that anatomy has. Indeed, Professor McDowall, of King's College, London, in a recent address told the following story:

A great surgeon once informed the members of his class that now that they had come to the wards they must put their science behind them. He was reproached by the local professor of physiology, but with characteristic wit and skill he escaped by replying: "Ah, my dear Professor, I meant that they were to put it behind them as a *vis a tergo*."

It is pleasing to record that he has since indicated that he does believe in physiological science as a real force, even in surgery. Lord Moynihan, in the course of a vigorous assertion that physiologists are not making the contributions they might to human physiology, said:

Physiologists must concern themselves more and more with human afflictions, and especially with those conditions which approximate so closely to the normal, that only expert investigation as to normal conditions is competent to discover or appraise them . . . If those who now hold the chairs of physiology in our teaching schools cannot be attracted to the study of man, it is time to consider whether we should not now seek to establish chairs in hominal physiology, giving those appointed the right of access not only to hospital beds, but what would be far more valuable, to the out-patient room, where the earlier stages of disease are seen. The truth is that we are all far too much concerned with advanced, or at least firmly established disease. There are earlier phases of disturbed function which lead up perhaps very slowly to those gross conditions which afflict the hospital in-patient, and which alone justify his admission. What is immediately required is a better knowledge of normal man and of the near normal "abnormal man". We must create a vast body of new knowledge, and the only true begetters of this will be the men trained in laboratory work, together with the clinician, medical or surgical . . . The absence of a close affinity between laboratory workers and clinicians, here as elsewhere, is clear evidence of a lack of vision on the part of both, and it is the sick who suffer from and who bear the burden of our default. The surgeon indeed must bring the science of structure and the science of function together after their long separation.

Professor McDowall, himself a physiologist, admits that the astuteness of the clinician will always be a potent factor in physiological advance. Professor Halford was under no illusions regarding the importance of a knowledge of physiology. "The sounder your physiology", he said in his address on the occasion of the opening of the Medical School

of the Melbourne University, "the truer will be your pathology. Without the one the other cannot be." By this he meant that it was impossible without a knowledge of normal function to understand and to estimate abnormal function.

Lord Moynihan's suggestion that the holders of the chair of human physiology in a medical school should have the right of access to the wards and the out-patient department is actually carried out in the Medical School of the University of Adelaide. The holder of the Chair of Physiology also holds the position of Honorary Physiologist to the Adelaide Hospital, and this gives him the right of entry to the out-patient department and to the wards. Halford sought permission to engage in consulting practice. This was refused. The privilege, from lack of being exercised, has not so far done a great deal to terminate the "long separation" between the science of structure and the science of function so deplored by Lord Moynihan. The Elder Professor of Anatomy likewise is Honorary Anatomist to the Adelaide Hospital. With the object of basing the science and art of surgery on a sound foundation of anatomy and physiology, representatives of the Royal Australasian College of Surgeons conferred in Melbourne two years ago with representatives of the Universities of Adelaide, Melbourne and Sydney. As a result of the conference the examination for the degree of master of surgery in the three universities in future will be divided into two parts. The first part of the examination will consist of anatomy and physiology. The final examination will be on surgery in its various aspects. The effect of this preliminary examination in advanced anatomy and physiology will be to improve the status and prestige of the degree. But the Royal Australasian College of surgeons is not concerned merely in improving the academical hall mark of a surgeon. Its ideal is to insure that its fellows shall possess the moral character and the intellectual and clinical qualities which the distinguished surgeons I have quoted believe to be so necessary, if they are to be masters. After 1932 all applicants for the fellowship of the College must possess a higher degree in surgery recognized as such by the Council.

The academic side of surgical training in Australia has necessarily to be arranged in cooperation with the universities, but with the object of improving the practical side of this training, the assistance of the boards of management or of the advisory boards of the large Australian hospitals was sought. The College made the suggestion that, as a surgeon must possess technical skill and judgement, this could best be obtained by a period of apprenticeship to a senior hospital surgeon and assisting him at operations. It therefore recommended to those who control the clinical schools in connexion with the large hospitals:

1. That surgical assistants be appointed to the indoor surgeons.
2. That a surgical assistant must possess a senior surgical qualification.

3. That a surgical assistant shall hold his position for a period of one year; that he shall be eligible for reappointment, but shall not hold the office for longer than three years.

4. That the controlling bodies should make the appointments from lists of candidates submitted by the College, which would, therefore, act in an advisory capacity in regard to the selection of candidates and the period of time which should be spent by each in practical work.

The scheme recommended by the College has been adopted by the Melbourne Hospital. A very similar scheme is in operation at the Adelaide Hospital, and the three large teaching hospitals in Sydney have been approached with a view to its introduction there. The College believes that the adoption of such a comprehensive course of academic and practical training will not only prove of great value by raising the standard of education in Australia, but will also insure a supply of highly trained men for the replenishment of the honorary staffs of the hospitals, increase the opportunities for observing and choosing the candidates most suitable for such posts, and improve the general level of surgical work, both from the point of view of the patient and the community.

That the academic side of surgical training in Australia is of a high, and in particular instances of a notably high order, is shown by the fact that ten out of the twenty candidates passed the exacting primary examination conducted in Australia for the first time by the Royal College of Surgeons of England. It is not unusual for only one-third of the candidates to be successful. Notable evidence is afforded by the fact that the Jacksonian Prize of the Royal College of Surgeons of England has in recent years twice been won by young Australian surgeons. When I say that the Jacksonian prize is to the young British surgeon much what the Victoria Cross is to the soldier, you will understand the merit of these successes.

The Future of Surgery.

I have already mentioned Lord Moynihan's opinion that surgery as a mere mechanical craft can hardly go further, and with this opinion, if applied to the present extirpatory and mutilating methods, I am disposed to agree. But human aspirations and endeavour being what they are, no art or science can stand still and survive. The knife from the time of the stone age and the ligature for some centuries have undergone many changes. The stone knife yielded to one of bronze, the bronze to one of steel, and this to rustless steel. The latest instrument is the electric knife, which cuts the tissues bloodlessly; in the removal of the tumours of the brain an electric loop divides the tissues bloodlessly. And who can say what the next development will be? The ligature, as rediscovered by Ambroise Paré, consisted of silk or linen thread of a thickness much greater than the ligatures used today. Before the time of Lister, when nearly all amputations suppurated, it was the habit of the surgeon to tug at

the ligatures hanging from the wound when he considered it safe to do so. A reference to *The Australian Medical Journal* of the fifties shows that aneurysm was common, the frequency being attributed by the first lecturer on surgery in the University of Melbourne to "the constant excitement and excessive muscular exertion in the pursuit of gold, with the large amount of stimulants taken in this country". It is noted in the reports of many of these cases that the ligature came away so many days after the operation. With the advent of Lister the procedure changed. He showed that the ligature could be sterilized and, further, that a ligature of catgut could be absorbed and made to disappear by the tissues after it had served its purpose. It was the discovery of the antiseptic system and the invention of the sterile ligature that made possible the extirpatory operations, which grew and grew with every succeeding year until, as Lord Moynihan has said, they have now almost reached their limits. These formidable procedures would not have been possible unless the loss of blood had been controlled by the application of an aseptic ligature. At the present time the ligature in the course of many operations is not used. The electric knife or loop which separates the healthy tissues from the disease, simultaneously seals the blood vessels. Surgery owes much to the collateral sciences, especially to physics, and I doubt whether surgery uses to the full the weapons they offer her. Sometimes a mere accident determines that she does so. (Lister's attention was drawn to Pasteur's work by a professional colleague in the University of Glasgow, and it was the same professor of chemistry who suggested the use of carbolic acid.) In considering the future of surgery, Moynihan asks the question: "In what direction may we expect the new adventures to be launched?" He insists that as a therapeutic and as a research weapon it must still continue, and he goes on to say:

It is not difficult to realize, however, that a change in its objective is already apparent. It has been the power by which structural disorders have been overcome by mechanical means, and its strength has been derived from deep foundations in anatomy.

Halford, referring to anatomy, said that without it "you will frequently suffer life to perish". "Surgery", Lord Moynihan concludes, "is becoming, and will increasingly prove to be, the agent by which control is gained over disorders of function, and its strength will derive from physiology." The future surgical treatment of cancer will not be by the old and mutilating methods of the knife. By a process of attrition the stronghold of cancer is slowly being reduced, and in this process radium and the more penetrating or deep X rays are the chief weapons. The investment of the stronghold began thirty years or so ago, when X rays were found potent in the treatment of that most superficial and benign form of cancer—rodent ulcer. A little later radium was found to be more beneficial and much more convenient to apply. In those early days the art and craft of surgery was not needed merely to apply a

radium plaque to the surface of the body. As time went on research and experience showed that radium could be successfully applied to the deeper forms of cancer, and so what is called the surgery of access gradually developed. To embed the radium needles in the depths of the tissues so that radium would act to the best advantage on the cancer cell, it was found necessary to call upon the anatomical and pathological knowledge of the surgeon. In those inner recesses of the body where Erichsen foretold the knife would never intrude, the skilful hand of the surgeon entrenches radium. Radium today hath its victories no less, nay, more renowned than those of the knife. Cure in the preradium days was achieved only too often at the price of mutilation. Today, thanks be to radium, cure comes without mutilation, and man remains as God said he made him, "a man in our image, after our likeness". A distinguished English surgeon, in discussing recently the value of radium, said no surgeon today is justified in removing the tongue or the lip for cancer.

Specialism in Surgery.

In conclusion, I desire to refer very briefly to specialism in surgery. It is not possible today for any surgeon to take all surgery for his province. Specialism is inevitable, but as the Harveian orator has recently said in England, "specialism, though favourable to the accumulation of facts, is bad for the philosophy of knowledge". He will be the best specialist who bases his knowledge of a limited compartment of the science of the art of surgery on a competent knowledge of general and comparative anatomy, of physiology and of pathology. The way to such a competence, general and special, is long and difficult, but only by following it shall the surgeons of the future compare to their credit with the great surgeons of the past. And with this statement the shade of Halford, perchance now gazing upon this gathering from "the second state sublime", would surely be in accord.

A CONSIDERATION OF ACHLORHYDRIA, WITH A REVIEW OF 100 CASES.¹

By L. J. JARVIS NYE, M.B., Ch.M. (Sydney),
Honorary Physician to Out-Patients, Brisbane
General Hospital,

AND

CLIVE H. SIPPE, M.B., Ch.M. (Sydney), M.R.C.P. (London),
Honorary Relieving Physician to Out-Patients, Brisbane
General Hospital.

A DISTINGUISHED practitioner of the days of Lister was recently heard to bemoan the passing of the art of medicine. Test tubes and gadgets, he inferred, were taking the place of that philosophical survey of the whole individual which was the glory of the old school. Using his own words:

The patient is no longer being studied in the consulting room as a human being with a personality and organs, but as a bag of viscera which will be transferred one by one to the laboratory.

In a world where paradoxically change seems to be the only stable commodity, our old colleague's bewilderment at altered conditions must be viewed sympathetically. Medicine in 1931 is admittedly vastly different from that of past decades. The tendency for the making of increasing numbers of routine, pathological and biochemical tests is assuming the proportions of an avalanche. The clinician asks for certainty and is not satisfied with probability, since the importance of early diagnosis with regard to treatment is daily becoming more fully realized. Briefly, he is searching for cause long before effect has rounded the disease into text book pattern, and in this study of predisease there is probably no more fascinating subject than that of achlorhydria.

Causation.

By the term achlorhydria is meant merely the absence of free hydrochloric acid in the stomach contents withdrawn after a fractional test meal. This may be brought about in several ways:

1. Excessive neutralization of free acid occurs in the stomach by abnormal regurgitation of duodenal contents or by excessive saliva or mucus, all of which are alkaline in reaction.

2. Mechanical blockage to free secretion occurs. For example, the excessive mucus which is found in mucous gastritis may block the tiny outlets of the glands and prevent the acid from flowing into the stomach lumen. Types of food or medication may act in a similar manner, for example, excessive fat, cod liver oil, liquid paraffin *et cetera*.

3. Deficient secretion of acid brought about by:
(a) Pathological defects. Faber,⁽¹⁾ by his studies, has shown that the gastric parenchyma reacts towards bacterial toxins in the same way as do other glandular organs, that is, they set up a disease of the glandular parenchyma of an inflammatory nature. This condition, which is a true gastritis, results in complete atrophy of the secreting cells.
(b) Conservative effect. The blood may have deficient acid forming material available, all the acid ions being required to maintain the acid-base equilibrium, and therefore portion of the chloride ions being secreted as neutral chlorides.
(c) Nervous suppression may be brought about by the psychical influences in general or of the test meal in particular. It is an objectionable performance and worries some patients considerably.

It is therefore important to distinguish between a complete lack of acid secretion and ferment—true *achylia gastrica*—and simple achlorhydria, in which the secreting glands are functioning normally, but in which the acid is prevented from flowing into the stomach or is neutralized by alkaline fluids.

In order to differentiate between these two conditions, many advances have been made on the ordinary gruel meal. Histamine is a powerful gastric secretagogue and when injected subcutane-

¹ Read at a meeting of the Medical Section of the Queensland Branch of the British Medical Association on September 14, 1931.

ously is found to produce free hydrochloric acid within thirty minutes if any gland structure capable of secreting remains.

It is now our practice to give an injection of 0.05 milligramme of histamine when the test shows no free hydrochloric acid up to the sixth or one and a half hour specimen. When true achylia is not present, there is a smart rise in the curve.

It must be remembered that histamine may cause a severe reaction if used in large doses, but with this small dose the patient experiences merely a momentary flush, which passes off very quickly. The intramuscular injection of neutral red (four cubic centimetres of a 1% solution) acts similarly. The "Bovril" broth meal and the alcohol meals, owing to the stimulating properties of the purin bases and of alcohol, are also an improvement on the gruel meal.

Incidence.

Achlorhydria may occur in apparently healthy people with no evidence of gastric defects. Among normal healthy students with no gastric symptoms, from 4% to 8% have been found to have achlorhydria, as shown in Table I.

TABLE I.

Investigators.	Number of Cases.	Percentage of Achlorhydria.
Bennett and Ryle ⁽²⁾	100	4.0
Baird, Campbell and Hern ⁽³⁾ ..	57	3.5
Apperly and Semmens ⁽⁴⁾	90	8.8

This incidence increases with age, as shown in Table II.

TABLE II.

Investigators.	Subjects.	Ages.	Percentage of Achlorhydria.
Wright ⁽⁵⁾	Healthy children.	5-16	1.6
Bennett and Ryle ⁽²⁾	Healthy students.	18-25	4.0
Davies and James ⁽⁶⁾	Healthy persons.	60-95	32.0

It is interesting to conjecture what may happen to these groups of people as they grow older, for it appears that they have at least a predisposition to certain diseases, especially pernicious anæmia and subacute combined degeneration. Some researchers believe these to be deficiency diseases, while others consider them to be caused by a toxin; but all are agreed that they occur almost exclusively in susceptible subjects and that the achylia is a predisposing factor. There is ample evidence to show that achlorhydria tends to occur in certain families. Wilkinson and Brockbank⁽⁷⁾ have collected from the literature: (i) Records of 125 families in which two or more members were affected with pernicious anæmia, with or without the complication of subacute combined degeneration of the cord. (ii) Records of 51 families in which pernicious

anæmia and achlorhydria existed simultaneously. (iii) Records of 14 families in which achlorhydria was found without pernicious anæmia.

Hurst,⁽⁸⁾ who has long stressed this familial tendency, has described one family in which the brother, father and paternal uncle and paternal grandfather of a patient with subacute combined degeneration of the cord had all died of pernicious anæmia. Dorst⁽⁹⁾ describes one family of eleven members, of whom nine had achlorhydria, and five of these had developed pernicious anæmia.

The Authors' Investigation.

The main objects of this paper have been to collect data bearing on the incidence of achlorhydria in a subtropical population, to discuss its significance and to consider the utility of fractional test meals. A review has been taken of one hundred cases of achlorhydria discovered by fractional gastric analysis performed on patients in whom gastric symptoms called for its employment. There has been no attempt to determine the percentage of persons with achlorhydria in certain diseases.

Although it is difficult to make accurate comparisons with the figures of other observers, since there are so many standards in use, Table III gives the percentage of achlorhydria in patients suffering from gastric symptoms, standards as nearly as possible similar to those employed by us being used. For this reason, in our series, no cases have been included in which the stomach was emptied before the two-hour period or in which histamine injections or any other than the gruel meal has been used. We found 40% of achlorhydria when the stomach was empty in the first one and a half hours.

TABLE III.

Investigators.	Number of Cases.	Percentage of Achlorhydria.
Hurst ⁽⁸⁾	712	15
Kohliyar ⁽¹⁰⁾	1030	15
Apperly ⁽¹²⁾	200	18
Nye and Sippe ...	350	21

From these figures it appears that the incidence is greater amongst our population, but it must be remembered that no corrections have been made for age and sex, therefore any comparisons are only approximate. This apparently increased incidence of achlorhydria in our group may have some interesting significance, for it has been pointed out by Apperly⁽¹³⁾ that a tropical climate may have some tendency to diminish the secretion of free hydrochloric acid in the gastric juice. Sundstroem,⁽¹⁴⁾ in a physiological study at the Tropical Institute, Townsville (latitude 19° 15' south), demonstrated that the inhabitants of tropical climates develop an alkalosis. This appears to be due partly to over-ventilation of the lungs resulting in a diminution of the carbon dioxide of the blood without a corresponding fall in the blood alkali. Working on this theory, Apperly and Semmens⁽⁴⁾ showed that the experimental production of alkalosis, however pro-

Acidity of 100 c.cms. Test Meal in 10 Hrs.

Acidity of 100 c.cms. test meal in 10 Hrs.

duced, resulted in a considerable diminution of gastric acidity and emptying time; conversely, acidosis raised gastric acidity and prolonged the emptying time.

Following up these observations and working on the same standards, we have plotted out the average curve of two hundred of Dr. Apperly's cases. This, as shown in Figure I, tends to bear out Apperly's

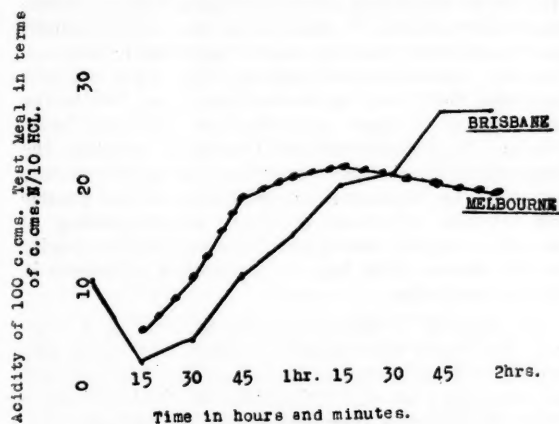


FIGURE I.
The continuous line shows the average curve for Brisbane (750 cases). The dotted line is the average curve for Melbourne (200 cases).

contentions, for his average is nearly twice as high as our average for the first hour; thereafter our curve is slightly higher. We then plotted the graph of the average curve in 403 cases examined during the hot months of the year (October to March) and compared them with the average curve of 344 cases examined during the cooler months (April to September). This, as shown in Figure II,

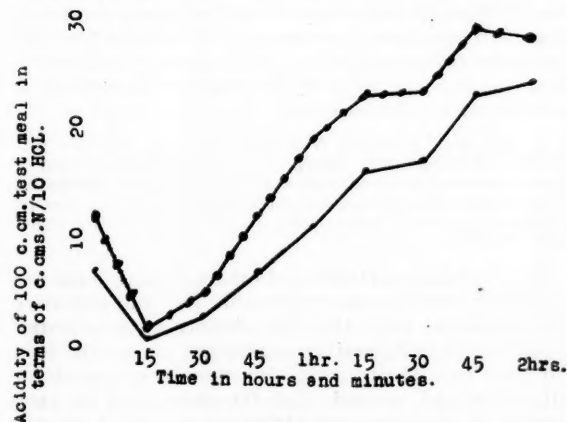


FIGURE II.
The dotted line is the average winter curve in 344 cases—17.5% achlorhydria. The continuous line is average summer curve in 403 cases—26.5% achlorhydria.

is supporting evidence for the winter curve up to one hour is practically double that of the summer and thereafter is 25% to 30% higher. Although it will be admitted that an analysis of such small

dimensions proves nothing, nevertheless, it opens up a very interesting field for investigation in more tropical areas, Brisbane being 35° south of the Tropic of Capricorn.

In our group of one hundred consecutive patients with achlorhydria, the age incidence was as shown in Table IV and a dissection of the primary diagnosis is shown in Table V.

TABLE IV.
Age Groups with Achlorhydria Percentages.

Ages.	Number of Patients.	Number with Achlorhydria.	Percentage.
10-19	11	1	9.0
20-29	44	10	22.7
30-39	67	10	14.7
40-49	56	13	23.2
50-59	51	8	15.9
60-69	21	9	42.9
70-79	5	3	60.0

TABLE V.

Primary Diagnosis.	Number of Cases.
Debility and neurosis	18
Mucous gastritis (unknown origin 13, alcoholic 3)	16
Visceroprosis and constipation	10
Carcinoma of stomach	9
Cold intolerance achlorhydria syndrome	9
Rheumatoid arthritis	6
Arteriosclerosis	5
Chronic diarrhoea	4
Debility	4
Pernicious anemia	3
Myxœdema	3
Malaria	2
Gall-stones	2
Pre-pernicious anemia	2
Phthisis	2
Asthma	2
Sprue	1
Mucous colitis	1
Syphilis	1

In this list of cases the factor responsible for the achlorhydria may be either excess neutralization, secretory inhibition or true achylia. A brief review of these groups of patients will be of interest.

Debility and Neurosis.—In New South Wales Bostock,⁽¹⁵⁾ as early as 1926, drew attention to the relative frequency of achlorhydria in the psychoses. His patients were not selected for gastric disturbances. He also noticed the relative frequency of apparent hypothyroid conditions in his series. In a further article on the "Composite Viewpoint of Mental Disorder"⁽¹⁶⁾ he considered that a thalamo-thyroid-vagal balance might account for some of the findings. Mott⁽¹⁷⁾ has described a similar relationship on the pathological side. If a chain of entities is involved in the neurosis, it is obvious that the administration of one remedy, such as thyreoid, would have little benefit unless the thalamo-vagal portions were also treated. These speculations open up interesting possibilities and draw our attention to the complicated problems which are associated with achlorhydria. Sailer⁽¹⁸⁾ found in 12 of 55 achlorhydric patients a typical anxiety neurosis, and believed that such neuroses characterized one of the peculiar types of achlorhydria.

In addition to the nervous manifestations, these patients complain of lack of energy and power of concentration. Their gastric symptoms are mainly flatulence, sense of fullness after food, and sometimes nausea. They are sallow in appearance and exhibit a mild degree of secondary anæmia.

Mucous Gastritis.—Mucous gastritis forms a very important group in which the results of treatment are almost remarkable. The most probable explanation is that the tenacious mucus blocks the opening of the tiny ducts in the gastric mucosa, thereby forming a mechanical blockage to the outflow of the acid secretion. These patients complain of more or less constant flatulence and discomfort in the epigastrium, with no definite food sequence. Their symptoms are almost invariably minimized or completely relieved by morning gastric lavage with hydrogen peroxide (two drachms to one pint of water) for ten to fourteen days, as advocated by Hurst.⁽¹⁹⁾ After such a thorough course of lavage we have frequently found a return to normal of the free acid in the stomach. The results of treatment in this group of cases alone almost justifies the routine use of test meals in patients with gastric symptoms.

Visceroptosis, Constipation Group.—The conditions in the visceroptosis, constipation group are very similar to those in Group I, but the patients have no well established nervous symptoms.

Carcinoma of the Stomach.—Hurst has long been the champion of the theory that achlorhydria is a predisposing cause of cancer of the stomach, and he has demonstrated this in many families. However, it appears that this cannot be a very important factor, for cancer of the stomach is more common in males than in females, whereas the incidence of achlorhydria is much greater in women than in men. Of our patients 17.8% were males and 22.9% were females, while Apperly,⁽¹²⁾ in an examination of 57 healthy women students, found 30% with achlorhydria. Hurst⁽²⁰⁾ stated that achlorhydria is found in 80% of cancers of the stomach in patients examined by the old Ewald meal, but in only 50% by the new fractional analysis.

Cold Intolerance Achlorhydria Syndrome.—The cold intolerance achlorhydria group is similar to Groups I and III, but there is a definite syndrome which does not appear to have been described in the literature. The group forms a typical clinical picture and the condition can be diagnosed almost at a glance. The main symptoms are anæmia, lassitude, constipation, dry tongue (not necessarily a true glossitis), dry skin and cold intolerance. Originally we thought these were cases of hypothyroidism, but the basal metabolic rate is normal and the patient's condition does not improve on the administration of thyroid extract. Since this syndrome, as far as we know, has not been described elsewhere, it is possible that Apperly's blood alkalosis theory may be a factor in the ætiology of these cases. We hope that this group will be the subject of a further communication at a later date.

In Groups I, III and V the difference appears to be mainly one of degree. The patients all complain of debility and gastric disturbances, usually with associated constipation, while a mild secondary anæmia is an almost constant feature. In this they somewhat resemble patients with chlorosis, for many patients frequently improve on large doses of iron, as much as 5.4 grammes (ninety grains) a day of *ferri et ammoniæ citratis* being given as recommended by Witts,⁽²¹⁾ who states that little benefit can be expected from the usual therapeutic dose. A frequent association of achlorhydria with anæmia has been described by several authors. While the exact proof of cause and effect is still not forthcoming, the recent work of Davies⁽²²⁾ prompts the suggestion that there may be some interaction between the hæmopoietic system and the gastric parenchyma. A more complete understanding of the physiological action or of the cell vital capacity in this respect bids fair to be another milestone in clinical medicine.

Rheumatoid Arthritis.—Achlorhydria is a common finding in rheumatoid arthritis, but Miller and Smith⁽²³⁾ have shown that it is not so frequent nor so important as was originally believed. From a study of 250 cases they found that achlorhydria was five times as common in rheumatoid arthritis as in normal subjects, but only slightly commoner than in all other chronic diseases.

Arteriosclerosis.—Senility and arteriosclerosis are factors *per se* in achlorhydria due to decreased vitality and to atrophic changes in the secreting cells.

Chronic Diarrhœa.—The conditions in the chronic diarrhœa group include so-called lenteric diarrhœa, characterized by frequent bowel movements in the early mornings or immediately after food. As with pernicious anæmia and subacute combined degeneration, there appears to be a definite familial tendency to this condition. Wilkinson and Oliver⁽²⁴⁾ describe one family in their series of cases which is worthy of special mention.

A man was invalided from the Army in 1857 for persistent diarrhœa, his daughter, a granddaughter and a great granddaughter all suffered from the same complaint. They were able to examine three members of the family, representing three generations, in all of whom they found achlorhydria.

The opinion of Hurst and others is that there are probably two factors responsible for this irritative phenomenon: first, that the absence of free hydrochloric acid and possibly pepsinogen causes the food to pass into the intestine improperly prepared for digestion and, second, that the absence of an antiseptic barrier permits abnormal bacterial growth which is responsible for the intestinal irritation. The administration of hydrochloric acid to these patients almost invariably effects immediate relief of symptoms.

Pernicious Anæmia.—Achlorhydria is such a constant finding in pernicious anæmia that its diagnosis in the presence of free hydrochloric acid in

the gastric juice must be considered as questionable. The familial tendency to this disease has already been discussed.

Pre-Pernicious Anæmia.—Pre-pernicious anæmia is a condition described by Eve,⁽²⁵⁾ in which there is debility and achlorhydria with a halometer reading of less than 4.5. The larger the size of the cells, the smaller the halo, so that the reading below 4.5 indicates an increase in the average size of the red cells (normal 5 to 8 μ). He suggests that these patients, if neglected, will later develop the clinical picture of true pernicious anæmia. His contentions are to some extent borne out by the great benefit these patients derive from liver therapy. We have been successful in identifying some of these cases by the routine use of the halometer when our suspicions have been aroused, and would suggest that the condition should be called pre-pernicious megalocytosis.

Pulmonary Tuberculosis.—As with rheumatoid arthritis, achlorhydria is frequently associated with pulmonary tuberculosis and becomes more constant as the disease progresses. Wilkinson and Oliver⁽²⁴⁾ found it to be present in 75% of patients with advanced pulmonary tuberculosis.

Asthma.—The frequent finding of achlorhydria in asthmatic patients has been recorded by many observers, while the results of treatment with hydrochloric acid in some instances have been most satisfactory. Bray⁽²⁶⁾ has recently emphasized this fact and, working on a group of asthmatic children, found that hypoacidity was present in 80%.

Syphilis.—Syphilis is considered by some writers to be a frequent cause of achlorhydria. In the small series of cases which we have investigated, we cannot agree with this opinion, for among twenty-eight patients examined, ten of whom were suffering from congenital and eighteen from acquired syphilis, there were only four with achlorhydria (14.2%).

In gall-stones, malaria and sprue, achlorhydria is commonly found, and its incidence increases as the disease becomes more chronic.

Many physicians scoff at the idea of giving hydrochloric acid to these patients, but surely there is sufficient justification for its routine use when the results of such treatment are sometimes so remarkable. When there is no apparent benefit following its use, at least it can be said that it should not be injurious.

Hurst,⁽²⁷⁾ by performing test meals after the administration of varying doses of dilute hydrochloric acid, has shown that, unless at least six mils (one and a half drachms) are given, free acid is not present in all specimens up to two hours. Doses of two to four mils (half to one drachm) still allow achlorhydria to occur, whereas six mils (one and a half drachms) or more produce practically a normal acid curve. Recently we have been using lemon juice as a substitute for hydrochloric acid, as recommended by Sansum and Gray,⁽²⁸⁾ and we have found it equally beneficial. A lemon drink before breakfast daily is usually sufficient to cure lenteric diarrhoea. It is now our practice to prescribe an early morning lemon drink and one with

the midday and evening meals. Oranges are found to be not quite so beneficial as lemons. There is no objection to sweetening the drink. Although it is well known that fruit juices are base-producing in the alimentary canal, nevertheless, they afford definite benefit. Some few patients with achlorhydria cannot tolerate hydrochloric acid, which aggravates their symptoms, while alkalis relieve them. These patients, in most cases, tolerate citrus fruits quite well.

A review of these groups of cases gives some very interesting food for thought. If a careful comparison is made of certain groups, there appears to be an extraordinary resemblance which can hardly be accounted for on the grounds of mere coincidence.

Pernicious anæmia, sprue, lenteric diarrhoea, pre-pernicious anæmia, subacute combined degeneration of the cord, the neurosis group and the cold intolerance syndrome which we have described, have features in common, so much so that in some cases they are differentiated with great difficulty.

In pernicious anæmia achlorhydria is almost invariably present and precedes the onset of the blood changes. It is permanent and is uninfluenced by treatment or by spontaneous remissions. In sprue, achlorhydria, although frequently found, is by no means a constant occurrence, and yet the blood picture can be sometimes identical with that of pernicious anæmia. Furthermore, Castle and Locke⁽²⁹⁾ have shown that muscle meat which has been partly digested in the normal stomach and regurgitated, when fed to patients suffering from pernicious anæmia, will produce an amelioration of symptoms. The same good results are produced when sprue patients are fed similarly. Does this not suggest a similar origin of the two diseases?

The close association between pernicious anæmia and subacute combined degeneration of the cord is well known to all, and the cessation of the progression of symptoms of the latter disease is the rule when liver therapy is instituted.

It does not now require a large stretch of the imagination to link up the pre-pernicious anæmia, the lenteric diarrhoea, the nervous debility and the cold intolerance syndrome cases into the one main clinical group. In all groups there is present some degree of debility and anæmia, abdominal symptoms are the rule, while it is usual to find some disturbance of the nervous system, varying from extreme melancholia to mere lack of power of concentration.

When one considers the frequently observed fact that hyperchlorhydria is much more common among the higher intellectual types than among those of less intelligence (in Apperly's⁽³⁰⁾ series of 90 students, the first 20 were wholly honours men, 13 of whom were hyperchlorhydriacs or high normals; conversely, he noticed that achlorhydria was found in persons of subnormal mentality), and when one recalls that achlorhydria is an almost constant feature in most of the above groups of cases, it surely suggests that in this one sign there is some significance, the importance of which has not yet been told.

Whilst it is perfectly true that many persons with achlorhydria show no sign of disease, it is equally true that a heart lesion, a spirillar infection and a raised renal threshold may be associated with apparently perfect health. There is so little knowledge of what might be termed pre-disease, that it is impossible to be dogmatic; nevertheless, it is known that achlorhydria is the precursor of some of these morbid processes; it is equally certain that some improve in a remarkable manner when treated by organic or inorganic acids, and for this, if for no other reason, we would stress our belief that the more extended use of the fractional test meal is indicated. It is our contention that, in a search for cause, long before effect has rounded the disease into text book pattern, the fractional test meal is of great importance, since it is our duty to satisfy ourselves that the trivial symptom is not the first step in the trail towards some serious disease.

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References.

- (1) K. Faber: "Chronic Gastritis: Its Relation to Achylia and Ulcer", *The Lancet*, 1927, Volume II, page 901.
- (2) T. I. Bennett and J. A. Ryle: "Studies in Gastric Secretion: A Study of Normal Gastric Function of One Hundred Healthy Men by Means of the Fractional Method of Gastric Analysis", *Guy's Hospital Reports*, 1921, Volume LXXI, page 286.
- (3) M. McBaird, J. M. A. Campbell and J. R. B. Hern: "Gastric Secretion, Physique and Physical Fitness", *Guy's Hospital Reports*, 1924, Volume LXXIV, page 330.
- (4) F. L. Apperly: "The Fractional Test Meal in Normal Students: A Comparison of Results with Those of Other Observers", *THE MEDICAL JOURNAL OF AUSTRALIA*, August 25, 1928, page 226.
- (5) C. B. Wright: Cited by D. T. Davies and T. E. G. James, Reference (6).
- (6) D. T. Davies and T. E. G. James: "An Investigation into the Gastric Secretion of One Hundred Normal Persons over the Age of Sixty", *Quarterly Journal of Medicine*, October, 1930, Volume XXIII, page 1.
- (7) J. F. Wilkinson and W. Brockbank: "The Importance of Familial Achlorhydria in the Aetiology of Pernicious Anæmia", *Quarterly Journal of Medicine*, January, 1931, Volume XXIV, page 219.
- (8) A. F. Hurst: "Essays and Addresses on Digestive and Nervous Diseases", *Guy's Hospital Reports*, 1926, Volume LXXVI, page 287.
- (9) S. E. Dorst: "Familial Pernicious Anæmia: A Discussion of an Unusual Group of Cases, with a Consideration of Achlorhydria as the Dominant Etiological Factor", *The American Journal of the Medical Sciences*, 1926, Volume CLXXII, page 173.
- (10) A. F. Hurst: "Advances in the Treatment of Gastric Disease", *The British Medical Journal*, November 3, 1928, page 779.
- (11) A. J. Kohliyar: *Guy's Hospital Reports*, 1926, Volume LXXVI, page 65.
- (12) F. L. Apperly: Personal communication.
- (13) F. L. Apperly: "The Possible Influence of Climate on the Incidence of Peptic Ulcer in Australia", *THE MEDICAL JOURNAL OF AUSTRALIA*, June 14, 1930, page —.
- (14) E. S. Sundstrom: "Contributions of Tropical Physiology", *Physiology*, 1926, Volume VI, page 92.
- (15) J. Bostock: "Digestion and Mental Disease: An Analysis of One Hundred Consecutive Fractional Test Meals, with Some Animal Experiments", *THE MEDICAL JOURNAL OF AUSTRALIA*, May 8, 1926, page 510.
- (16) J. Bostock: "The Composite View Point as to the Causation of Mental Disorder, with Particular Reference to Sepsis and to Endocrine Derangement", *THE MEDICAL JOURNAL OF AUSTRALIA*, September 3, 1927, page 111.
- (17) F. W. Mott: "Microscopic Examination of the Central Nervous System in Three Cases of Spontaneous Hypothyroidism", *Proceedings of the Royal Society of Medicine*, Volume VIII, Section of Psychiatry, 1915.
- (18) J. Sailer: "Achylia Gastrica", *The Journal of the American Medical Association*, 1922, Volume XV, page 1221.
- (19) A. F. Hurst: "Advances in Treatment of Gastric Disease", *The British Medical Journal*, November 3, 1928, page 780.
- (20) A. F. Hurst: "Achlorhydria: Its Relation to Pernicious Anæmia and Other Diseases", *The Lancet*, 1923, Volume I, page 111.
- (21) L. J. Witts: "The Syndrome of Glossitis, Dysphagia and Anæmia", *Guy's Hospital Reports*, April, 1931, Volume LXXXI, page 193.
- (22) D. T. Davies: "Studies on Achlorhydria and Anæmia", *Quarterly Journal of Medicine*, July, 1931, Volume XXIV, page 447.
- (23) S. Miller and F. B. Smith: "An Investigation of Gastric Function in Chronic Arthritis and Fibrositis", *Quarterly Journal of Medicine*, 1927, Volume XX, page 271.
- (24) J. F. Wilkinson and T. H. Oliver: "Some Clinical Conditions Associated with Achlorhydria", *The Lancet*, January 10, 1931, page 66.
- (25) F. C. Eve: "Diffraction Methods in Diagnosis of Pernicious Anæmia", *The British Medical Journal*, August 16, 1930, page 267.
- (26) C. W. Bray: "The Hypochlorhydria of Asthma in Childhood", *Quarterly Journal of Medicine*, January, 1931, Volume XXIV, page 181.
- (27) A. F. Hurst: "Achlorhydria: Its Relation to Pernicious Anæmia and Other Diseases", *The Lancet*, 1923, Volume I, page 111.
- (28) W. D. Sansum and T. A. Gray, Junior: "Achylia Gastrica", *The Journal of the American Medical Association*, June 1, 1929, page 1892.
- (29) W. B. Castle and E. A. Locke: "The Feeding of Gastric Tissue in Treatment of Pernicious Anæmia", cited by H. M. Connor, *Journal of the American Medical Association*, February 14, 1931, page 500.
- (30) F. L. Apperly and K. M. Semmens: "The Fractional Test Meal in Normal Students: A Comparison of Results with Those of Other Observers", *THE MEDICAL JOURNAL OF AUSTRALIA*, August 25, 1928, page 237.

THE EVOLUTION OF PUBLIC HEALTH ADMINISTRATION IN AUSTRALIA.

By J. H. L. CUMPFSTON, C.M.G., M.D., D.P.H.,
Director-General of Health, Commonwealth of Australia.

THE story of the evolution of Australian public health legislation and administration is most conveniently divided into five periods:

- (a) The long period from 1788 to 1850 during which there was no administration and only elementary and incidental (but not specific) legislation.
- (b) The period from 1850 to the smallpox epidemics of 1880-1885.
- (c) The period from the smallpox epidemics to the plague epidemics of 1900-1906.
- (d) The period from the plague epidemics to the establishment, in 1921, of the Commonwealth Department of Health.
- (e) The period since 1921.

Other peaks or periods might have been chosen, as, for example, the principal *Public Health Acts*, formation of boards of health and so on; but these have no more real significance than the chimes of a clock; the points of actual importance were the influences (that is, the active phases of diseases) which provoked and procured the legislative and administrative reforms. It has been said that panic is the parent of sanitation and that is well exemplified in the history of Australia. Our great public health reforms date from the smallpox and the plague outbreaks—unfamiliar diseases. Contrast this with the very active (almost epidemic) prevalence of pulmonary tuberculosis in the sixties, seventies and eighties, which produced no administrative reform; the disease was too familiar and the aetiological factors were then unknown. On the other hand, active legislation was directed against

the intestinal infections. This was an echo of the movements in England.

Further echoes of the movements of English legislation are to be seen here and there throughout the history of Australian legislation, mere imitation having played a part.

For a full comprehension of the course of events we must briefly review the story of the evolution of world knowledge. Cholera invaded England in October, 1831, and that started public health activities in the world. A new disease, rumours of which had been steadily reaching England from India, declared itself at Sunderland. It found England alert enough, for immediately there arose an official general board of health and various voluntary local boards of health at different provincial towns. Thus, crudely, but rationally enough, began the modern public health movement. For the next thirty years all energies were devoted to very active work based upon the almost proven assumption that cholera, typhoid and typhus fevers (not then distinguished) were engendered by filth. Though this was scientifically wrong, administratively it was sound enough. Then came Pasteur and his proof that disease was bacterial, specific and not engendered by filth; this dominated opinion until further work proved that the two factors both operated and were, in fact, often complementary.

Because the adaptation of bacterial phenomena to the dictates of legislation has been found difficult, legislation has continued to concern itself chiefly with environmental factors and modern public health is becoming increasingly a matter of education and decreasingly a matter of legislative compulsion; the tendency, in fact, is to transfer the control of those factors susceptible of legislative control to bodies and departments other than the health departments. It has to be remembered that, although there had been considerable attention paid to public health matters from 1831 onwards, the first *Public Health Act* in England, or in the world for that matter, appeared in 1848.

We are now in a position to review the period from 1788 to 1850.

The First Period.

The position up to 1850 was this: New South Wales had, during the first portion of this period, been a military autocracy, the Governor having almost absolute powers. The rule "*quod gubernatori placet, legis habet vigorem*" was applied very extensively. But in this phase there was little occasion for the exercise of those powers. The menace of disease on ships caused quarantine inspections and, even in 1804, a proclamation. The pollution of the water supply of Sydney caused an exhortation, querulous rather than mandatory; and the local slaughter houses at Parramatta began to proclaim their presence, without any consequential legislative action.

Intestinal infections were not a serious problem and the occasional introduced epidemics were not

considered important enough to produce legislation or anything more than occasional lapses from lethargy.

The quarantine proclamation has, however, its own significance. It referred to yellow fever in New York and was slavishly copied from a similar proclamation issued in England, without any regard to its applicability to Australia.

Because of the mode of exercising the great powers entrusted to the Governor, it became necessary to create a Legislative Council in 1823. The same act which created this council also separated Tasmania into an independent colony. The first public health act passed by this New South Wales Legislative Council was the *Quarantine Act* of 1832—a *verbatim* copy (except for changes to insure local application) of the similar English act of 1825. Amendments to this act were made in 1841 and 1849 to make it more definitely applicable locally.

The Second Period.

Victoria, founded as a settlement in 1834, remained in vassalage to New South Wales until 1850, and had during that period no independent legislative or administrative movements; being a small pastoral population, it had no characteristic disease movements. The discovery of gold and the great immigration of 1850 to 1855 changed all that. The mass camping without sanitation brought the havoc of typhoid. The gross overcrowding of the ships of transport of these immigrants brought typhus fever. As echoes of the prevalence of cholera in England, ship after ship arrived with that disease, and two smart outbreaks of smallpox, with a third minor outbreak, all served during the second of our periods to stimulate and maintain acute interest in public health. Added to this was the fact that the new population consisted very largely of Cornish and Yorkshire folk not over-wedded to central domination and full of the ideas of sounder local self-government which had commenced in England with Russell's *Reform Act* of 1832 and had culminated there in the *Public Health Act* of 1848.

The terrific outbreak of infantile and juvenile infections of the sixties and seventies which I have described elsewhere, was subsiding, and with it interest in public health, as, of all the disorders at first important, only typhoid fever and tuberculosis remained; these, not being unusual, but familiar, did not excite reform. The influence of the great English *Public Health Act* of 1875 was seen in the passing of the *Amending Public Health Act* of 1876. Thus ended the second period in Victoria, having seen the passage of smallpox acts and acts to control the sanitation of towns.

Tasmania was an administrative dependency of New South Wales until 1823, after which it had its own government. The existence of the convict system brought about ship typhus amongst the convicts transported and gaol typhus ashore. Apart from this, the story of Tasmania during our second period is commonplace, presenting no notable landmarks in administrative or legislative reform.

Queensland was, until 1860, portion of New South Wales; after that it had its own independent Government, but no development occurred during our second period, a gradual progress, elsewhere described, taking place.

South Australia developed slowly as a pastoral and agricultural community throughout the whole of our second period. Developments there certainly were, but they were neither abrupt nor revolutionary. No unusual epidemic occurred, and the progress of the familiar diseases was not such as to arrest any special attention.

Western Australia slumbered as an unprogressive pastoral community throughout the whole of our second period, showing only such developments of normal evolution as are recorded elsewhere.

During the period 1850 to 1880, therefore, there was no notable public health activity in any State except Victoria. That State, being filled with newcomers from England, reacted rather sensitively to the successive reform developments in the mother country, the stages of 1848-1855, 1866 and 1875 in England being reflected in Victorian legislation.

In the other States this reflected action was not so apparent. In New South Wales it can hardly be traced, in Queensland the 1875 act was only adopted in 1884, in South Australia an act was passed in 1876, doubtless under the stimulus of the 1875 English act, but unlike it.

It is probable that the Western Australian *Municipal Institutions Act* of 1876 was influenced by the English act of 1875, but, if so, it was not very effective in its action. The *Health Act* of 1886 was, however, derived from the 1875 act.

The Third Period.

The third period is that from 1880 to 1900, that is, the period from the smallpox epidemics to the plague epidemics.

This is a pivotal period in many important respects. It commenced with the vigorous push towards reform given by the smallpox epidemics of 1881-1887. This disease was active in New South Wales in 1881-1882 and in 1882-1885, in Victoria in 1882 and in 1884-1885, in Tasmania in 1887, and in South Australia in 1884. So far as is known, Queensland and Western Australia escaped. The effect produced by these epidemics was in itself considerable, but it was enhanced greatly by the fact of the establishment of medical schools in the Universities of Sydney, Melbourne and Adelaide. This fact, important in itself, was sharply accentuated by the personalities and the public health instincts of three great men, Anderson Stuart, Allen and Stirling, each medical school being fortunate in its chief.

These vigorous personalities found their match in the first trained public health specialists Australia has had—Ashburton Thompson and Gresswell.

These five great men laid the foundations of real public health administration in Australia, Stirling perhaps less than the others. No student of public

health in Australia should fail to make himself familiar with the writings on public health subjects of Allen, Stuart, Gresswell and Thompson.

The smallpox epidemic in New South Wales resulted in the passage of the *Infectious Diseases Supervision Act* of 1881, which created the Board of Health. Thompson was its first whole-time medical inspector. Some interested New South Wales public health diplomate should some time write the story of the New South Wales Board of Health. Thompson was extraordinarily active over the smallpox epidemics, and after these had subsided devoted himself to the investigation of typhoid fever. He was the greatest epidemiologist we have had in Australia, having an instinct for investigation. His proof of the relationship between typhoid fever and dairies was so complete that the *Dairies Supervision Act* was passed in 1886. Progress was slow compared with the other States, but in 1894 a *Noxious Trades Act* and in 1896 the first *Public Health Act* were passed. This latter copied many passages from the *Public Health (London) Act* of 1891. And so, during this twenty years of the third period progress along modern lines was definite, if a little slow and irregular.

For Victoria a different story is to be told. The smallpox epidemics brought about some amendments in the direction of extending legislation which was already fairly good, principally providing for the notification of "malignant, infectious or contagious disease". But there was no great change until the great prevalence of typhoid fever and the energetic representations of Allen produced the appointment of the Royal Commission on the Sanitary Condition of Melbourne, from which came the *Public Health Act Amendment Act* of 1889. This created a Department of Public Health, abolished the Central Board of Health and brought into operation many administrative reforms along modern lines. Also, by providing for the appointment of a whole-time medical inspector, it made possible the appointment of Gresswell, who took up duty in Victoria in 1890, a great public health administrator. True to English traditions, he pushed for reform in sanitation—control of the environment—but it must now be admitted that, great as he was, he found the conservative atmosphere of the Melbourne of that period rather too much for him. He might, under favourable conditions, have accomplished more.

In Queensland there is almost nothing to record for this period. There must have been a central board of health in 1865, but nothing is known of it. In 1872 a *Health Act* was passed, but it was dormant until the Governor declared it to be in operation. In 1886, coincident with similar legislation in New South Wales, power was given to control dairies.

In South Australia it cannot be said that the smallpox epidemic had any results, except the passing of the *Health Act* of 1884. This provided for notification of infectious diseases and in many respects followed the English act of 1875. Then came quiescence until the act of 1898, which still

stands as the principal act in South Australia. In this act the framers have departed from the traditional arrangement of health legislation. At this time, also, Ramsay Smith was appointed; and the third period closed without incident.

In Western Australia no smallpox epidemic occurred. The fear of its happening, however, caused amendment of the *Land Quarantine Act* in 1884. In 1884 a Royal Commission on the Sanitary Condition of the City of Perth was appointed, the necessity for some such inquiry being obvious. Following the report of this commission the *Public Health Act* of 1886 was passed. This was based on the 1875 English act and created a Central Board of Health. This was sufficient for the time being, but the ghastly typhoid fever outbreaks of 1892, 1893, 1894, 1895 on the Coolgardie goldfields led to amending acts in 1892, 1893 and 1895. But, curiously enough, the State was so busy that it did not establish any system of public health administration. The smallpox epidemic of 1893 left no mark on public health methods.

In Tasmania various acts were passed, the principal being the 1885 act; this was stimulated indirectly by the public health activities of the other States, but it did not represent any real activity. The 1887 smallpox outbreak at Launceston had very little practical outcome.

The Fourth Period.

The fourth period was notable in many ways. While the third period had been passing, the bacteriological era was establishing itself, the doctrine of dirt as a cause of disease had been pushed into the shadow by the specificity concept, and the possibilities of real disease prevention looked bright. Then came plague, which established itself in every State except South Australia and Tasmania. The clear demonstration of the rat relationship swung attention back to environmental factors and stimulated imagination. As a result there came the crop of young Australians keen on bacteriology or on public health. They have been many, but the decade 1900-1910 deserves most to be recorded. It was the period of Armstrong, Dick, Tidswell, Norris, Ham, Elkington, Blackburne, Robertson, Cherry, Bull, Cleland and Sinclair—young men revelling in new fields, limitless possibilities, and a public made receptive by this new fear. It was a time of new concepts and much legislative and administrative reform. It was the first appearance of native Australian-born public health experts.

In New South Wales a new *Public Health Act* (1902) was passed, the Board of Health being given more defined authority; the Department also was greatly expanded and a public health laboratory came into being.

In Victoria amending acts were passed in 1900, 1903 and 1907. Gresswell died in December, 1904, and was succeeded by Norris. No special administrative reforms have to be recorded, except perhaps the introduction of pure foods legislation (1905), which does not quite fall within the limits of this

review. There was, however, steady progress in all directions.

In Queensland the plague stimulated a complete change. The *Public Health Act* of 1900 introduced an entirely new system of administration. The old Central Board of Health was replaced by a single commissioner, Ham being the first. This legislation remained in force until 1911, when many detailed amendments were made.

In South Australia no change of any importance occurred during the whole of this period. Ramsay Smith remained true to his convictions that health administration was a matter closely circumscribed by the provisions of the health acts, and definitely a responsibility of the local boards of health. No special disease incidence occurred to disturb the evenness of this outlook.

In Western Australia the occurrence of plague disturbed the official calm, and the Central Board of Health became very active. Blackburne established a laboratory, made the first medical inspection of school children in Australia, and the Department began to be active in all the normal phases of public health activity. No legislation was introduced until 1911, when a completely new *Health Act* was passed, substituting a sole Commissioner for the Central Board of Health. This act endeavoured to meet the changed outlook on public health rendered necessary by the transition from the environmental approach to the biological attitude. The Western Australian Department flourished thereafter with modern legislation in all fields, being the first to pass a *Venereal Diseases Act*.

Tasmania had no plague, so it lacked that stimulus, but it had a smallpox epidemic in 1903, which led to the appointment of Elkington as Chief Health Officer and to the passage of the *Health Act* of 1903. This act differed a little from the acts of the mainland States, the draftsman borrowing largely from New Zealand legislation.

From 1900 to 1909 the various changes brought about under the stimulus of plague and the general movement of social activity which characterized that period proceeded rapidly in most States. Laboratory facilities were developed, school medical inspections begun, tentative efforts were made at epidemiological inquiries and so on. These continued through until now; but certain changes have taken place.

The first wave of enthusiasm and confidence resulting from the success against the intestinal infections has passed, leaving us with doubts as to the great group of respiratory infections. The outbreaks of cerebro-spinal meningitis, of poliomyelitis and of encephalitis have a little shaken our confidence. Apart from these we have had three major epidemics—smallpox of 1913, influenza of 1919 and plague of 1921. Each played a most important part, especially in defining the relative functions of Commonwealth, States and municipalities and in developing and strengthening legislation and administration.

The Quarantine Service of the Commonwealth, founded by the *Quarantine Act* of 1909, became in 1921 the Commonwealth Department of Health.

The Fifth Period.

The story of developments since that change, especially the creation of the Federal Health Council, is too long and involved for telling here.

ACCOMMODATION IN MONOTREMES AND MARSUPIALS.

By SIR JAMES BARRETT,
Melbourne.

SOME considerable time ago I commenced work on the optical characters of the eyes of monotremes and marsupials, and especially on the range of accommodation. Mammals below the primates whose eyes have been examined, do not accommodate to any appreciable or useful extent. Reptiles, however, such as our blue-tongued lizard, do possess a considerable range of accommodation. If, then, the monotremes and marsupials developed from a reptilian form, one would expect the accommodation to be better than that higher in the scale.

The method adopted was to examine the eyes by retinoscopy and then, if possible, perform a single or double iridectomy. When the eyes quietened down, the refraction was estimated with the eye quiescent and also when a faradic current was applied to the corneal margin. This method has proved quite satisfactory in the case of monkeys.

On some animals, however, an iridectomy is practically impossible, as the iris gives way. This occurred in the case of the native cat. The errors of refraction, both spherical and astigmatic, in some of the eyes were considerable.

In the echidna, the wombat and the koala no accommodation could be detected by the methods employed. As in the case of some other animals, the koala has a slit-shaped pupil nearly vertical. If the animal's head is rotated, it tries to keep the slit vertical, like the rabbit, by rotating the eye within limits. Some of the eyes, for example, that of a large native cat, have an iris markedly curved forward and a very shallow anterior chamber. The koala has much the same arrangement.

Owing to pressure of other work, I did not finish the investigation, which was lengthy, tedious and difficult. I am now publishing this information in the hope that some one with the necessary leisure and interest may finish it.

The extraordinary light shed on the evolution theories by the numerous methods of accommodation occurring in the animal world render a complete investigation of vast importance. The general impression left by such an examination as was made is that from the optical point of view the eyes of the animals named were very imperfect. It is possible that the eyes of the wallaby and kangaroo may be better developed.

Treacher Collins, in the Bowman Lecture, 1920, drew attention to the fact that the animals in which we found the accommodation absent or rudimentary, had practically no ciliary muscles. The echidna has none. The marsupials (wallaby) have a small longitudinal strip.

When anyone can explain the riddle outlined, namely, the extraordinary variation both in the growth and atrophy of the ciliary muscles and in the extent of accommodation in animals, he will have gone far to solve the fundamental biological problem.

Reports of Cases.

THE EFFECT OF "LONDON PASTE" TREATMENT OF TONSILS.

By R. H. BETTINGTON, B.A. (Oxon), B.M., B.Ch. (Oxon),
Clinical Assistant, Ear, Nose and Throat Out-Patients' Department, Royal Prince Alfred Hospital, Sydney.

THE "London Paste" method of treating tonsils has enjoyed a certain amount of popularity of late years, and recently I came across one of its effects.

"London Paste" is a mixture of equal parts of caustic soda and slaked lime, used as a caustic and claimed by some to effect marked reduction of the tonsil tissue and to reduce the effects of absorption from septic tonsils.

After cocaineization of the tonsils the mixture is made up into a thick paste with distilled water and applied to the tonsil surface, care being taken to avoid the pillars and to wipe away any excess.

In my small experience the result is a rapid hæmorrhagic inflammatory reaction accompanied by great salivation and considerable pain; this pain lasts for several days and the tissue destruction is negligible.

A patient, aged fifty-seven, a male, came to see me, complaining of sore throat; he had had a course of ten applications of paste, and at his special request I continued. He informed me that he had been told his heart was "far too bad" for an anæsthetic, and he certainly had a large number of extrasystoles.

After four applications I could find no appreciable lessening of the tonsil tissue, so I advised cessation of treatment and gave him an autogenous vaccine. After a three months' course of injections he appeared well enough to do without them; the tonsils were present, but had a shiny, glazed appearance, and he had had no sore throats.

Six months later he complained of more sore throats and was again given vaccine injections. This time he did not improve, and the next development was an acute duodenal ulcer. His medical attendant for that complaint decided that he was fit for an operation and that his tonsils must come out.

The operation was performed on July 2, 1931, and the tonsils were found to be small and hard; under the glazed surface, which was thick and fibrous in both cases, was a necrotic, foul-smelling caseous mass.

Since operation his progress has been remarkable; he has had no further digestive trouble, and his extrasystoles have become very infrequent. He says he feels a "new man".

I bring this case forward to show that "London Paste" not only does no good, but can do harm by closing up exits for septic material.

SOME END RESULTS OF DEEP X RAY THERAPY.

By H. FLECKER, M.B., F.R.C.S.,
Honorary Radiologist, Austin Hospital; Honorary Demonstrator in X Ray Anatomy, University of Melbourne.

In earlier reports some details were given of the immediate effects of treatment of malignant disease by means of deep X ray therapy, when the results were

sufficiently striking and led to the belief that in some cases at least the healing of the lesion and the disappearance of the disease might be permanent or at least of some years' duration. Well over eight years have elapsed since these initial reports and the accompanying examples are given so as to follow up some of the earlier cases to a more recent period.

Rodent Ulcer.

CASE I.—C.C., aged sixty-five, an inmate of the Austin Hospital, as a result of a rodent ulcer, had lost the whole of the projecting part of his nose, and the disease involved the eyelids on both sides and extended on to the face. The condition had been present for twenty years. He had no previous treatment of any kind. As the result of the exposures on July 20, September 8 and December 12, 1922, the disease entirely healed within six months and an artificial nose had been fitted, greatly improving his appearance. [See illustrations, "Transactions of the Australasian Medical Congress (British Medical Association)", 1923, supplement to THE MEDICAL JOURNAL OF AUSTRALIA, July 26, 1924.] The lesions remained entirely healed, without any suggestion of recurrence for three years, until the date of his death, September 6, 1925, from pulmonary oedema.

CASE II.—Mrs. S., aged fifty-three, had a rodent ulcer, which started on the right *ala nasi*. It was first treated by radium in 1918, when it healed, but broke down again three months later. It was then treated by another skin specialist from August, 1919, until July, 1921, with superficial X ray treatment. Finding the condition steadily becoming worse, she consulted an unqualified man, who treated her with the aid of sunlight. She has never had any operative or diathermy treatment. When first seen by myself on May 21, 1924, she had lost the lower part of the right *ala nasi* and practically the whole of the left *ala nasi*, and the condition was spreading on to the left cheek. (See illustration, *Urologic and Cutaneous Review*, February, 1928.) The first treatment, a single dose, was given on May 22, 1924, and the second on August 26, 1924. She has had no treatment since. The last report to hand, dated October 7, 1930, six years after the last treatment, is that her nose remains quite well.

The above two cases serve to illustrate that even in the presence of wide destruction of cartilage, a few ulcers may be made to heal promptly and that recurrence may be delayed for many years, if not permanently. Of course, it must be understood that this is not always the case, and disappointments by every method of treatment are quite common.

Carcinoma of the Breast.

CASE III.—Miss S.C., aged forty-two, had a lump in her breast for two years before receiving deep X ray treatment. This had been under X ray treatment with a smaller outfit since December, 1921, since when she had had weekly exposures up to September 21, 1922. Although the growth was quite inoperable, this appeared to be sufficient to prevent the condition spreading.

Dr. Brennan's report of a section of the growth reads: "*Carcinoma simplex*, tending to scirrhus type."

Two doses of deep X radiation were given on November 6 and December 18, 1922. [See illustrations, "Transactions of the Australasian Medical Congress (British Medical Association)", 1923, supplement to THE MEDICAL JOURNAL OF AUSTRALIA, July 26, 1924.] The condition healed completely within three months, the patient's weight increasing from 59.8 kilograms (nine stone seven pounds) to 69.3 kilograms (eleven stone). The lesion remained healed for about eighteen months, when, owing to evidence of recurrence, another dose was given on October 2, 1924, and on July 25, 1924. Slight ulcer still persisting, further doses were administered on October 3, 1924 and on March 20, 1925. Nevertheless, the ulcer slowly spread despite further doses on September 15, 1925, and on January 10, 1926. At the last visit, on February 4, 1926 (three years after the first deep X ray treatment) she reported feeling more comfortable, and although the growth appeared to be responsive to treatment, was evidently spreading.

CASE IV.—Miss R.R., aged forty-three, had a lump in the left breast, about the size of a walnut, below and to the outer side of the left nipple and involving the deep

fascia. She states that she first noted the lump one week prior to the first treatment. She has obstinately refused operation of any kind, and biopsy was not permitted. Axillary glands were not palpable. First doses of deep X ray treatment only were given, namely on December 6, 1926. Regular quarterly visits have been made since, and the dose was repeated once only, on January 12, 1928, but the mass has steadily dwindled in size and is now somewhat difficult to palpate. Weight has increased from 56.7 kilograms (nine stone) to 78.3 kilograms (twelve stone six pounds), and when last seen on October 28, 1931 (nearly five years after the first treatment), she was in perfect health.

Tumour of the Pharynx.

CASE V.—J.A., aged thirty-two, was sent on March 5, 1923, by the late Dr. R. A. Stirling with a note: "I think a case of sarcoma of the tonsil and glands in the neck of fourteen months' duration." At the time the patient had a large mass filling up the fauces, much interfering with deglutition and speech, as well as large glands upon each side of the neck. Unfortunately, although the patient was sent to a pathologist for the purpose, a microscopical section was not made.

On March 12, 1923, one single dose of X ray therapy was given and has never been repeated since.

On March 26, 1923, a fortnight after treatment, the patient reported for inspection, when the great bulk of the tumour masses had disappeared. It was stated that diminution in size had been noted two days after treatment. The normal voice was completely restored.

Although off duty since October, 1923, that is, five months before treatment, the patient resumed his occupation as an electrician in May, 1923, that is two months after the exposure; he has been regularly employed ever since. All that remains to indicate the original condition is a small foramen in the anterior pillar of the fauces, probably caused by the pressure of the original growth.

On January 17, 1931, he is perfectly well (nearly eight years after treatment) without trace of any recurrence.

Lymphosarcoma or Lymphoma of Soft Palate.

CASE VI.—Mrs. W., aged thirty-two, first reported on March 25, 1924, with a growth on the soft palate for four or five months. A report by Dr. Brennan was: "? lymphosarcoma or ? lymphoma, Wassermann reaction negative." Only one treatment with deep X ray therapy was given on April 7, 1924, after previous removal of tonsil by Dr. R. L. Rosenfield. Her medical attendant reported on June 1, 1924: "So far no sign of growth."

On June 20, 1927, the patient reported that her weight had increased from 50.4 kilograms (eight stone) to over 69.3 kilograms (eleven stone). She slept well, which she could not do before treatment, and has improved in every way.

On September 6, 1928, her weight was 73.8 kilograms (eleven stone ten pounds). No abnormality of the throat could be detected.

On February 2, 1931 (nearly seven years after treatment), a letter was received: "Am very well, still over eleven stone in weight; have no trouble with my throat."

Ewing's Endothelioma of the Clavicle.

CASE VII.—K. McM., aged fourteen years, was sent on July 13, 1923, by Dr. W. R. Forster, who had removed the clavicle about five weeks before. Dr. Forster reported that the patient had had a sarcoma of the middle shaft of the clavicle with some extension towards the medial end. Total excision of the clavicle was carried out. Some difficulty was encountered in separating the clavicle from the first rib. The swelling had been first noted about February, 1924. A section was sent to the Registry of Bone Sarcoma, Boston, and a report of Ewing's sarcoma was received. The patient's weight was 39.1 kilograms (six stone three pounds).

On May 16, 1923, a single dose of X ray therapy was applied to the region of the excised clavicle.

On February 18, 1924, a swelling was noted over the right ulna and a skiagram taken indicated the probability of a metastasis.

On April 2, 1924, deep X ray therapy was applied over a lesion in the right ulna.

On July 16, 1924, pain and swelling over the ulna disappeared. No trace of any recurrence anywhere remained.

On January 13, 1930, there was no sign of any recurrence anywhere. The patient's weight was 64.8 kilograms (ten stone four pounds).

In August, 1931, Dr. Forster reports still no trace of recurrence (more than seven years after the last X ray treatment).

Ewing's Endothelioma of the Humerus.

CASE VIII.—Mrs. S., aged thirty-eight, was sent by Mr. H. B. Devine, with an extensive brawny induration of the left arm and shoulder, extending from below the elbow to the chest and root of the neck, which had been coming on gradually for the past six months, accompanied by a great deal of pain. No history of trauma was obtainable, although the swelling was preceded by pain lasting eighteen months and had been diagnosed as neuritis. Both the elbow and shoulder were fixed and rigid, and the whole limb rendered thereby useless.

Report upon histological tissue taken from the region of the deltoid muscle by Dr. Brennan was as follows: "Fibrous reticulum with numbers of small spindle and round cells strongly suggestive of sarcoma." A section, submitted to the Registry of Bone Sarcoma in Boston, United States of America, was classified as Ewing's endothelioma.

On July 17, 1922, an intensive dose of deep X radiation was given. Eight days later the patient was greatly excited at the marked improvement. On August 10, 1922, the swelling had almost disappeared, enabling her to do up her hair. On September 8, 1922, her weight was 55.3 kilograms (eight stone eleven pounds), a gain of 4.9 kilograms. On September 13, 1922, a second dose of deep X ray therapy was given. On November 17, 1922, the patient was able to play the piano. On July 14, 1924, she was free from recurrence, except for a small nodule over the ear. A third dose was given. On August 14, 1924, there was no trace of any growth. The patient was leading an orchestra of eight, playing the piano herself. On January 30, 1925, her weight was 69.7 kilograms (eleven stone one pound) and she was keeping in splendid health.

She remained free for another couple of years (four years after the first dose), when a swelling was noted in the groin. A skiagram showed it to be connected with the pubic ramus, and it was regarded as a recurrence. On November 24, 1926, a fourth X ray exposure was given. On April 28, 1927, the patient was in excellent health; she attended a special clinic for demonstration purposes. On November 23, 1927, her weight was 72.4 kilograms (eleven stone seven pounds). On examination there was a dense, hard mass on the right side of the perineum to the side of the fourchette. On January 4, 1928, a fifth X ray dose was given to the perineum. On March 9, 1928, the patient was admitted to the Austin Hospital complaining of pain in the back and down the right thigh. The lesion could not be definitely located, but was believed to be a recurrence in the lumbar plexus. On June 7, 1929, she died, nearly seven years after the first X ray treatment.

The history of the above patient shows that she obtained very prompt relief from gross incapacity to use the limb to apparent freedom from any sign of distress, with great increase in weight and improvement in general health lasting for several years. Although distant metastases ultimately appeared, local recurrence did not take place during the whole of the seven years since she survived the first treatment.

Giant Cell Tumour of the Humerus.

CASE IX.—J.N., a female, aged fourteen, gave a history, in May, 1926, that, whilst hanging on to the strap of a tram, her right arm broke. She was seen at the out-patient department of the Children's Hospital, when an X ray examination revealed a fracture through the upper end of the humerus with a rarefied, trabeculated appearance in this region, suggesting fracture through an idiopathic bone cyst. The Wassermann test gave no reaction. The other humerus was normal. On June 21, 1926, union was apparently complete and there was a good deal of callus formation.

On September 18, 1927, again as a result of slight violence, fracture through the upper end of the right humerus occurred. X ray examination revealed an appearance typical of giant cell tumour.

On September 19, 1927, the first and only dose of deep X ray therapy was given to the region of the fracture. On October 31, 1927, the fracture was healed. No disability whatever could be detected at the shoulder. On December 19, 1927, appreciable improvement was noted in the appearance of the skiagram. On December 21, 1927, the patient's weight was 39.6 kilograms (six stone four pounds). On September 29, 1930, three years after the last treatment, no trace of any recurrence of the tumour was found. The patient's weight had increased to 47.7 kilograms (seven stone eight pounds). The function of the right arm was perfect.

Retroorbital Tumour.

CASE X.—Miss N.C., aged twenty, was sent to me by Dr. W. H. Bennett in January, 1928. She complained of headache, ptosis of the left eyelid and diplopia on looking upward. On examination paralysis of the third and seventh nerves was found. The Wassermann test gave no reaction.

Dr. Arthur Joyce reported that the fundi, optical fields and blind spot were normal. At no time did she have any optic neuritis.

On January 25, 1928, Dr. K. Hiller first saw the patient, when she complained of some headaches, especially on the left side of the head, and of drowsiness. She also complained that she could not lift the left eyelid, and saw double.

On examination there was definite paralysis of the muscles supplied by the third cranial nerve and possibly also that supplied by the fourth—superior oblique muscle. There was also some question of slight left-sided facial paresis. The remainder of the neurological examination revealed no abnormality.

On February 3, 1928, the X ray report read: "Marked exaggeration of sphenoidal fissure on left side apparently due to retrobulbar neoplasm. Pituitary fossa only slightly enlarged, if at all, not deformed, though bony walls somewhat thickened."

On February 10, 1928, deep X ray treatment was given. In September, 1931, the medical attendant reported complete freedom from all signs of retrobulbar involvement, such as absence of ptosis, diplopia, nerve involvement *et cetera*.

Reviews.

PRACTICAL BIOLOGICAL CHEMISTRY.

"CLINICAL CHEMISTRY IN PRACTICAL MEDICINE", by C. P. Stewart and D. M. Dunlop, is an extremely useful book for medical practitioners.¹ As the authors state, it is not a text book of biochemistry for the laboratory worker, but aims at something more than a short description of methods or the interpretation alone of laboratory results. The introduction and the chapter on the collection and preservation of samples for examination should be read and reread by any clinician who has to collect material for the biochemist.

A chapter is devoted to the basal metabolic rate. The importance of correct preparation of the patient is stressed. The mechanism of neutrality regulation in its relation to practical medicine is well explained and the authors draw attention to the possible coexistence of alkalosis and ketosis under a separate subheading, for which they are to be commended.

Benedict's picric acid method for the estimation of blood sugar is the only method given, but the various types of blood sugar curves are well figured and explained. The "lag type" of curve is taken as showing a liver deficiency or glycogen storage deficiency.

The control of the treatment of diabetes by blood and urine examinations is briefly surveyed and the necessity

¹ "Clinical Chemistry in Practical Medicine", by C. P. Stewart, M.Sc., Ph.D., and D. M. Dunlop, B.A., M.D., M.R.C.P.: 1930. Edinburgh: E. and S. Livingstone. Crown 8vo., pp. 256. Price: 7s. 6d. net.

for frequent blood sugar estimations for accurately controlling coma is mentioned.

In the chapter on albuminuria and tests of renal function the significance of a high blood urea finding is discussed and the limitations of renal function tests are pointed out. There is no mention of the urea clearance test.

The authors point out briefly the different views as to the cause of oedema in the hydræmic types of nephritis.

The examination of stomach contents, tests of hepatic and pancreatic function are dealt with impartially and clearly. The glycosurias and albuminurias of pregnancy are discussed shortly, but in a very satisfactory manner. A chapter is given to the blood calcium and its significance.

On the whole, the authors are to be congratulated on the production of a book which, while containing nothing new to the biochemist, should prove of great value to the practitioner and hospital resident medical officer.

CLINICAL MEDICINE.

THE need for a more earnest cultivation of the observational method has been the theme of numbers of medical philosophers of late who have seen the dangers of over-mechanizing medicine. The clinician has not done justice to the "many inventions" of the laboratory in regarding them as a short cut; they are rather complementary to the Hippocratic art of the internist, who thereby can more clearly view not only "man upright", but also (improving upon *Ecclesiastes*) man laid low by disease. Very clearly has this been expressed by Robert Hutchison in his recent Harveian Oration (October 19, 1931) wherein he pleaded for a return to the Hippocratic outlook and a due regard for the integration of the bodily units and their functions in evaluating the meaning and nature of the morbid processes that are the reason for the medical practitioner's existence.

The more welcome, then, is the appearance of a revised edition of the work of a great clinician, the late Adolf Strümpell, of Leipzig, the high tradition of whose work has been carried on by Seyfarth, now Professor of Medicine in the same city.¹

One first asks what are the outstanding features of a text book, and in regard to one written in another language, what qualities have warranted its translation. The answer is that there is really no book of quite the same type available in English. This three-volume work is much more comprehensive than any one-volume "omnibus", of which there are already many examples, yet it is not a system of medicine, either in bulk or in outlook. It is a full and satisfying account of the underlying causes of disease, its perversions of function, its alterations of structure; and standing at the bedside, the author constantly points out its manifestations in the patient and indicates the means of its relief.

A feature of the book is the excellence of the descriptions and the complete and interesting setting forth of physical signs. Physiology and pathology are adequately dealt with, though in the simplest terms. Not only the states known as "diseases" are described; there are numbers of useful sections devoted to certain general conditions of varied kinds, such as habitual headache, hepatic coma, the different forms of localized spasms (in nervous disease) *et cetera*. Perhaps that describing the "strumous and exudative diathesis" might be dropped without loss; it is an instance of a conservatism discernible all through the book, and which has here and there perhaps stayed the authors' hands unduly from a little judicious pruning.

The infections are clearly dealt with. Pneumonia, whooping cough and pulmonary tuberculosis are relegated to the section on lung diseases, whereas poliomyelitis remains among the infections. But these arrangements vary with different authors. Pyæmia and septicæmia are handled under the one comprehensive heading of sepsis. One section that might be expanded is that on *encepha-*

litis lethargica, where the sequelæ deserve rather more detail. The cautious and even duly sceptical attitude of the authors is seen in their views on scarlet fever, where they doubt the rôle of the hæmolytic streptococcus as the primary causal agent. It is noteworthy also that the recommended dosage of antitoxin in diphtheria is frequently exceeded in this part of the world.

Respiratory diseases are excellently described, and with wealth of detail. We should like to see more prominence given to paranasal infections in relation to the chronic pulmonary infections, for in this field, as in many others, prophylaxis is much more important than later recognition and treatment. It is interesting to find that tuberculin is still recommended in the country of its birth, but without striking enthusiasm.

Circulatory diseases are not dealt with so successfully. The clinical descriptions are of high grade, and the judicious appeal to radiography in diagnosis is well made, but we cannot help feeling that the newer cardiology has not quite received justice. Notable omissions are auricular flutter, the electrocardiograph in the recognition of coronary occlusion and branch bundle block, the method of mass dosage with digitalis, and the importance of diastolic readings in arterial hypertension. Those whose prescribing of digitalis is restricted to the tincture will note that only the leaves and infusion are recommended for routine use.

The section on the digestive system is interesting and stimulating. The fractional test meal is not given the prominence usually accorded it, nor is the method employed the same as that in current local practice, and here, as elsewhere, the outlook is chiefly clinical. Here, too, we should consider a dose of ten minims of dilute hydrochloric acid inadequate in achlorhydria. Nervous dyspepsia is given a characteristically sound treatment, and it is sagely pointed out that the patient is cured not by the physic but by the physician.

There is a well written section on diseases of the metabolism. The modern position is well summed up on the endocrines and a sufficiency of the chemistry is given to make understanding clear and treatment logical. We should like to see plainer guidance in the selection of medical, radiological or surgical treatment of exophthalmic goitre; basal metabolism estimations are referred to, but little detail is given. The bearing of adenoma on the goitre problem is not dealt with.

It is a little surprising to find only scant reference to the combined degeneration of the spinal cord in pernicious anæmia, either in the chapter on blood diseases or that on the nervous system, but in other respects the ailments of the blood are fully and clearly set forth, with useful hints on liver therapy.

In renal diseases it is admitted that no thoroughly satisfactory classification can be made in the present state of knowledge, but the subject is discussed with due regard to the clinical findings and the known aberrations from normal structure and function. Nephrosis and nephritis are regarded as rationally distinct, but no hard and fast line is drawn between them from the bedside point of view. Amyloid kidney, which we tend perhaps to forget, is brought forth in some detail, a reminder that the condition is not merely a relic of a bygone pathology. Attention throughout this section is decidedly centred on the kidney, even in regard to granular kidney, where the authors apparently hold that the extrarenal tissue has been often given undue consideration. Very little will be found on tests of renal function, especially those involving the use of urea, though the simple water excretion and concentration tests are given clear descriptions.

Nervous diseases occupy the whole of the third volume, and that without any reference to mental alienation. The help given in order to observe signs, elicit them, to understand findings, to localize lesions and to clarify comprehension of the various complexes is entirely adequate. Many allusions to personal experiences spice these pages, a remark that is true of the whole book. Some of these experiences are denied to us today. For instance, Strümpell remarks: "Younger physicians who always use Salvarsan do not know what results were formerly obtained by exclusive treatment with mercury and iodides", a saying that takes us back to Gowers's fine little work on

¹ "A Practice of Medicine", by Adolph Strümpell: Thirtieth Edition, by E. Seyfarth, M.D., Ph.D.; translated by C. F. Marshall and C. M. Otley; Volumes I, II and III, 1931. London: Baillière, Tindall and Cox. Crown 4to., pp. 2379, with 409 illustrations. Price: £5 5s. net.

syphilis of the nervous system. Throughout the whole of this section there is constant coordination between signs and symptoms and disorders of structure and function.

Treatment is faithfully detailed in this book, and many are the helpful suggestions. Many references are made to drugs and methods half forgotten in the fashions of the moment; some of these will be strange to users of the British Pharmacopœia, who will no doubt rather deplore the frequent and often unnecessary recommendation of proprietary drugs. The right attitude to treatment is admirably expressed in this sentence: "Extreme scepticism leads to therapeutic nihilism; equally bad is the absence of critical faculty."

The illustrations are of a high standard; the coloured plates are excellent, the photographs and reproductions of skiagrams are alike good, though the latter are very much reduced in size.

A few omissions are noted, such as erythredema and celiac disease. Misprints are very few. Of these Guy's pill is printed Gay's (page 638), "left superior frontal gyrus" should be "temporal" (page 2047), 1,500 cubic centimetres as equivalent to three pints should be 1,800 (page 1151).

The paper and printing and general production are of the highest standard, and there is a good general index at the end of the third volume, though an additional index to each volume would be welcome.

Last, but not least, must be mentioned the fine work of the translators, Marshall and Otley, whose flowing, pleasant style gives the illusion of an original.

In conclusion this is eminently a work for the practising physician, to whom it may be warmly commended, for it presents the subject entirely from his own point of view. It is admitted that the latest in experimental and laboratory medicine will not be found in any detail, but that is not within the scope of the book. Nor will the treatment recommended always contain the most recent or, indeed, all vaunted suggestions, for only those methods found of service by the authors are given. In other words, this book is not a compilation, but an embodiment of personal experience, and it is to be hoped the emulation of the powers of observation and judgement shown in it will do something to bring to light those men of imagination, of the contemplative Harveian type, of whom, as Dr. Hutchison points out, we stand in great need.

MEDICAL CHEMISTRY.

"PHYSICAL CHEMISTRY FOR STUDENTS OF MEDICINE", by Alexander Findlay, should prove of value as a text book for medical students.¹ The book consists of thirteen chapters and two hundred and fifty-six pages.

Physical chemistry and its relation to physiology, bacteriology and other branches of biological science underlying medical practice are discussed in an elementary manner. Throughout the book the author has remembered that he is writing for medical students and uses physical chemistry to explain many physiological and pathological phenomena which occur in the body; this distinguishes his book from others on the same subjects and increases its value.

Chapter II, entitled the "Aqueous Milieu of the Life Processes", and Chapter IV, "Osmotic Pressure in the Living Animal", are especially valuable in this regard. The author, however, leaves himself open to adverse criticism when he attempts to explain oedema in five lines.

The behaviour of electrolytes in solution is adequately dealt with, and the chapters on mass action applied to electrolytes and the hydrogen ion are clearly written and the phenomena are well explained.

Chapter IX is devoted to oxidation and reduction, and some of the biological oxidation reduction systems are briefly mentioned. Slightly more space could have been given to glutathione with advantage to the student.

The velocity of reactions and catalysis and enzyme action have a chapter devoted to them.

Where the colloidal state is discussed, Donnan's membrane equilibrium theory is not sufficiently stressed and also is not mentioned in the index. Donnan's theory is of far greater importance in biological chemistry than a discussion of the Hofmeister series, to which the author has given space and which is also indexed. Adsorption and its practical application to agglutination and toxin-antitoxin phenomena and certain processes connected with public health are clearly explained and the interest of the reader is sustained throughout the chapter.

In the final pages the permeability of the cell membrane is the subject, and the works of Overton, Clowes and Traube are shortly surveyed. No mention is made of the experiments of Leathes and Adam with surface films.

Throughout the book references are given at the bottom of the pages on which they occur, and not at the end of the chapters. References are, as usual with a student's text book, scanty. The book is well indexed, the only important omission being already mentioned; it is singularly free from misprints.

THYREOID AND MANGANESE AS A PANACEA.

H. W. Nott has published a book dealing with the thyroid and manganese treatment of a multiplicity of disorders.¹ The treatment originated in the person of the author himself, who was operated upon for colitis with pericolicitis and adhesions attended by a number of symptoms, including swollen finger joints and bleeding gums. After the treatment indicated he regained comfortable health. He describes the anatomy and physiology of the rectum and relates experiments on laboratory animals. A full description is given of rectal injections of potassium permanganate. Thyroid gland and potassium permanganate may also be given orally together or at different times. The number of diseases cured or ameliorated includes pneumonia, influenza, rheumatism, rheumatoid arthritis, glycosuria, eczema, neurasthenia, abnormal blood pressure (high or low), pustular acne and *acne rosacea*, *lupus erythematosus*, urticaria and a multitude of others too numerous to catalogue. The author states that his common sense method is worth testing in early cases of glandular deficiency and that it may be a useful alternative measure to those whose faith in vaccines has diminished. He truly mentions that ideas are to be found in the book which challenge some held in respect and affection. He claims that when these drugs are combined in their action, oxidative processes are greatly increased, with reduction of infective agents and of toxic products in the blood and tissues. He claims that there is a lessening of the load in the thyroid gland which returns to its normal action according to the degree of injury sustained, and that thyroxine deficiency is made up. He claims that a purer blood supply eases the strain on the other internal secreting organs and more normal secretions are prepared. Where hormones of good quality have been secreted and where vitamins in good quantity have been ingested, only to be neutralized by toxic products in the blood, this waste is lessened or ceases. By removal of the conditions of nerve block conceivably brought about by organic compounds just as selective in their action as perhaps atropine, digitalis and aconite, the delicate balance of the autonomic nervous system is restored so far as degenerative changes permit. The pharmacology of manganese as studied by L. E. Walbum and Morsh is described and indirect dangers attending the method explained. It should not be used for acute capillary bronchitis or hay fever. An extremely small percentage are intolerant to manganese and in them there is an inclination to develop multiple pustules.

The explicit details of the cases reported should be convincing, but they completely fail to convince. The whole book is an illustration of the perils of a fixed idea.

¹"Physical Chemistry for Students of Medicine", by A. Findlay. Second Edition; 1931. London: Longmans, Green and Company. Demy 8vo., pp. 272, with 46 figures. Price: 10s. 6d. net.

¹"The Thyroid and Manganese Treatment: Its History, Progress and Possibilities; The Introduction of a Method of Systemic Detoxication in the Control and Prevention of Disease", by H. W. Nott, M.R.C.S., L.R.C.P.; 1931. London: William Heinemann (Medical Books) Limited. Crown 8vo., pp. 280. Price: 7s. 6d. net.

The Medical Journal of Australia

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All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

AUSTRALIA AND SURGEONS.

LONG distances, wide open spaces and scattered population have combined, ever since the early days of Australian colonization, in making difficult the provision of adequate medical and surgical treatment for the people of the Commonwealth. The problem in Australia is quite different from the problem in Great Britain. The advent of the motor car and the laying down of good roads, and latterly the use of aeroplanes for the transport of medical practitioners and for ambulance purposes have solved many of the difficulties. But, in spite of these advances, the surgical practice of the Commonwealth must still be considered from two points of view. On the one hand there are the capital cities and larger country towns, with every possible advantage of equipment and consultation, linked up by railway and other means of communication with smaller centres. On the other hand are the distant outposts, held in the face of disease by isolated and valiant fighters who are often called upon to meet the gravest emergencies. Adequate training is as necessary for work in one sphere as for work in the other; and, while self-reliance and wisdom are needed in both, they are probably required more by the isolated practitioner, for he is often unable to

summon an expert to his aid. In view of Sir Henry Newland's Halford Oration, published in this issue, it is interesting to consider the training of surgeons for city and country practice.

Sir Henry Newland is President of the Royal Australasian College of Surgeons and has had a vast surgical experience; he therefore speaks with authority. We would direct particular attention to that portion of his address in which he discusses the education of a surgeon. Most people will agree that all surgical practice must be based on a knowledge of anatomy and physiology. There will be some divergence of opinion in regard to the value of searching examinations in these subjects as a preliminary to an examination for a higher surgical degree; this will not be discussed at the moment. It will be ceded, however, that the activities of the Royal Australasian College of Surgeons will result in more Australian graduates seeking the higher surgical degrees of their own universities and will go a long way towards eradicating the idea that an English fellowship is indispensable to an Australian surgeon. It must not be understood from this statement that there is any intention of belittling the Fellowship of the Royal College of Surgeons of England; this would be absurd, for it will for many years to come be regarded as the blue ribbon of surgical qualifications. The most acceptable feature of the scheme of training outlined by Sir Henry Newland and drawn up by the Royal Australasian College of Surgeons is the "period of apprenticeship" required of a junior surgeon. The essential features of this scheme were elaborated by Professor Harold R. Dew, of the University of Sydney, in his address at the last annual meeting of the College. After describing what he called the preclinical sciences and the correlation in the clinical years, Professor Dew discussed post-graduate education. He divided the period into five years. The first year was to be spent as house surgeon. In the second year the graduate was to be promoted to be a senior resident medical officer and be given control over juniors; he was to be allowed to operate under supervision, and was gradually to be granted more independence in this regard. During the third year he was to be given the title of Fellow in Surgery and was to be "definitely committed to the full term of training".

He was at this stage to be allowed to operate more independently, should take some part in the teaching of students, and should be part-time worker in a research institute. During his fourth year he was to devote the whole of his time to research work. During his fifth year he was to continue as a part-time research worker, "but in preparation for obtaining his senior qualification, should spend more time in the study of both the preclinical sciences and clinical surgery, acting, if possible, as demonstrator in one or more preclinical departments". There can be no doubt that a young graduate who passed through this period of preparation would be suitable for appointment to a junior position on the staff of any hospital.

As far as metropolitan teaching hospitals and the larger non-teaching hospitals are concerned, some scheme such as that outlined by Sir Henry Newland ought without question to be adopted. Such an arrangement would at least assure the appointment of competent persons to a staff. The scheme, however, leaves untouched much of the practical training of the man in the country who is forced to operate in emergency. Professor Dew said in his address:

It must be admitted that . . . we must train the student to be a safe general practitioner, and that we cannot, in the limited clinical years allotted, give him a knowledge of all surgical diseases, of difficult surgical procedures, or equip him with sound surgical judgement. We can, however, instruct him in the general principles of surgery, give him a sound knowledge of common surgical conditions, a good grounding in diagnostic methods, and we can teach him how to observe, to correlate, to generalize, to apply, and to think, so that he may be able to adapt himself, and—as all of us do—go on learning all the days of his practice.

Any practitioner . . . who cannot act promptly in cases of surgical emergency is a reflection on his medical school.

With this all will agree. And yet resident medical officers are allowed to leave hospital and go to practise in far distant parts without ever having been allowed to open a peritoneal cavity. The first patient brought to them may have a gangrenous appendix, a ruptured gastric ulcer, a ruptured extrauterine gestation or a strangulated hernia. Operation cannot be delayed; and it would be much easier for the medical practitioner and much safer for the patient if the medical practitioner had performed a somewhat similar operation once or twice

before. The objection will certainly be raised that to allow every resident medical officer to operate under supervision would give them a false sense of their ability and would result in the letting loose on the community of a number of men who would be dangerous on that account. The reply is obvious: Every medical practitioner must be trusted to recognize his own limitations; if he does not recognize his limitations, he is not worthy of his profession.

In his address Sir Henry Newland was concerned only with surgeons as specialists; he did not consider the surgical training of general practitioners. Had he done so, we feel certain that he would have expressed views similar to the statements here made regarding country practice. It is necessary to remember that, important though the training of surgeons for large hospitals undoubtedly is, the man who is to practise in splendid isolation, must be given every opportunity of learning from actual performance the essentials of surgical technique.

Current Comment.

RADIUM THERAPY AND PAIN.

IN reports on the treatment of malignant disease by radium the statement is frequently made that one of the results of treatment has been the cessation of pain. This statement has been made so often that the impression may have been created that radium (or X ray) therapy is generally followed by loss of pain. But pain does not always disappear after irradiation of malignant growths. The non-disappearance of pain does not appear to be stressed in clinical reports, and it is therefore of some interest to read a report by R. S. Pilcher, Radium Registrar of University College Hospital, London, on the results of radium therapy at that institution.¹ Pilcher's inquiry covered all patients treated at University College Hospital for benign and malignant conditions from April, 1929, to September, 1930. The total number of patients was 330, and of these 250 suffered from malignant disease. The patients were divided into three groups: Group I consisted of patients who had pain before and who were not relieved by treatment. Group II consisted of patients who had pain before and were relieved by treatment. Group III consisted of patients who had persistent pain after, but no pain before, treatment. In none of the patients with non-malignant conditions was pain a prominent feature, either

¹ *The Lancet*, November 28, 1931.

before or after treatment. Of 250 patients with malignant disease 43 complained of pain before treatment was instituted. Since in the majority of cases the disease was in an advanced stage, this figure is regarded as low. Of the 43 patients 10 died during or shortly after treatment, 12 were relieved of their pain and 21 were not relieved. Sixteen patients, who were free from pain before treatment, experienced pain after treatment. The last mentioned group, in Pilcher's opinion, should be larger, since little is known of some of the patients who died after treatment. There were thus 59 patients in the whole series who complained of pain, and 25 of these had the primary growth in the mouth. The number of patients with growths in the mouth was 57.

In considering reports on pain it is obvious that some definition must be given. Pilcher points out that pain depends on the susceptibility of the individual and he has included in the series only those patients whose pain was persistent and who sought relief on its account. Of the 21 patients in Group I whose pain was not relieved, 11 died—most of them after a short period. Excluding the effect of radiation on the tumour, none of the eleven derived any benefit from the treatment, and the pain of three was aggravated. The twelve patients in Group II whose pain was relieved, form the brightest part of the picture; two are dead and ten are alive, and of these five are apparently cured. Of the sixteen patients in Group III only four show no evidence at all of the persistence of the growth. In five instances irradiation was definitely a cause of pain, though not necessarily the only cause. One of these five patients was cured of his pain, one has died and the other three survive with every prospect of continuing to live.

The chief point about this investigation is that it teaches, first, that irradiation does not always relieve pain, and, secondly, that it may *per se* cause pain. According to Pilcher, the only painful sequelæ that can be attributed solely to radium are radionecrosis and direct injury to nerves. These are surely a question of dosage and technique. Of course, as Pilcher states, by increasing the fibrous tissue reaction to a growth, radium may aggravate pain, due to pressure on nerves. Short details of the technique used in each case reported by Pilcher are given. He points out that there has been no uniformity of technique, that certain factors, such as screenage and linear intensity, may be variable in a single case, and that it is almost impossible to assess their value. This carries the further lesson to workers in Australia that in large centres, such as a large metropolitan hospital, radium treatment should be placed in the hands of one man. This man will soon become expert. He should have assistants who in time would be able to step into his vacant shoes. In this way continuity of service is possible. Only if every care is taken to insure adequate and expert treatment will it be possible to assure patients that everything possible will be done for the relief of pain. Even though pain be not always

relieved or avoided, the results sometimes obtained, as in Pilcher's second group, will make radium treatment worth while.

THE MALIGNANCY OF CARCINOMA OF THE CERVIX UTERI.

THE relation of histological structure of carcinoma of the *cervix uteri* to the prognosis has been the subject of much investigation. It is doubtful how far metastasis should influence the prognosis, since patients with cervical cancer so often die of secondary renal changes, such as hydronephrosis resulting from stricture of the ureter due to its involvement in the growth. Shields Warren, of Boston, has recently discussed the histological grading of cervical cancer in the light of his findings in one hundred and two cases in which autopsy was performed.¹ He points out that the inherent difficulties in any attempt to use duration of life as a criterion for the efficacy of histological grading of tumours is obvious. Allowance must be made for the normal duration of life in the untreated patient, the adequacy of treatment, the possible death of the patient as a result of treatment, and the possibility of death from an entirely different cause.

Warren used a modification of Broder's classification and divided the epidermoid carcinomata into three groups on the basis of differentiation of the tumour cells, frequency of mitosis and relation of tumour to stroma. In addition, he included adenoacanthomata and adenocarcinomata. His 102 cases included 23 Grade I epidermoid carcinomata, 42 Grade II and 18 Grade III; six adenoacanthomata, eight adenocarcinomata and three cases in which the whole of the tumour was destroyed. The average duration of all cases, irrespective of treatment, was 2.2 years. The duration from apparent onset until treatment was undertaken varied from eleven months to one year and nine months in all cases except the highly malignant Grade III epidermoid carcinomata, in which the time was seven months. Among the 23 Grade I epidermoid carcinomata, 13 had no metastases, seven had metastases to the regional glands, three had metastases to distant glands, and one had visceral metastases. Of the 44 Grade II tumours, 10 had no metastases, 33 had metastases in regional glands, 20 in distant glands, and 16 had visceral metastases. For the 18 Grade III tumours the figures are 2, 14, 14, 12. Metastases of the adenoacanthomata and adenocarcinomata will not be considered. Warren makes the great mistake of recording his results in percentages. The smallness of his total does not warrant this—it is obviously absurd to state that only 4% of Grade I epidermoid carcinomata have visceral metastases. If the total were 4,000 cases, the matter would be different. In spite of this, he is probably justified in his statement that there is a close relationship between the histological findings in regard to malignancy of a tumour of the *cervix uteri* and its power to give rise to metastases. It is doubtful whether histological grading of tumours is widely enough used.

¹ Archives of Pathology, November, 1931.

Abstracts from Current Medical Literature.

OPHTHALMOLOGY.

The Surgical Entity of Muscle Recession.

P. C. JAMESON (*Archives of Ophthalmology*, September, 1931) describes his most recent technique for muscle recession. The conjunctival incision is vertical, from seven to eight millimetres in length, following the curve of the semilunar fold. The conjunctiva is dissected forwards towards the cornea, that over the caruncle is left undisturbed. The capsule is picked up with forceps above the muscle at the region of the equator about five millimetres behind the insertion and buttonholed with scissors. While the capsule is still held by the forceps, the tenotomy hook is introduced and swept under the muscle. The capsule is again buttonholed on the lower side of the muscle opposite the first opening and the muscle thoroughly undermined. Thus is outlined a capsule-muscle flap to be receded. The muscle is now clamped with the muscle forceps and severed. Three single-armed sutures are provided. The central one is introduced from without the conjunctival lip nearest the caruncle. It perforates the outer side of the muscle 1.5 millimetres below the centre and 1.5 millimetres behind the end of the tendon. The needle is then passed through the muscle from the under surface to emerge 1.5 millimetres above the centre of the muscle. The thread is looped around and behind the suture where it first perforated. This central suture is now made to split the sclera, taking a two-inch bite and, being carried forwards, it perforates on its under-surface the conjunctival flap adjacent to the cornea. The two remaining wing sutures pass in transit the outer surface of the caruncular conjunctiva, muscle end, sclera and conjunctival lip nearest the cornea. Their position should be sufficiently well apart to insure a broad attachment. The tying of the sutures firmly holds the muscle to its attachment and closes the conjunctival opening. The author generally makes the single or bilateral recession the primary procedure and often no further operation is necessary. But in some cases an advancement of the opposing muscle is required.

The Retinal Changes of Arteriosclerotic Heart Disease and Essential Hypertension.

E. F. HORNE AND M. M. WEISS (*Archives of Ophthalmology*, October, 1931) make an attempt to correlate the modern concepts of heart disease with retinal changes. Arteriosclerosis and essential hypertension are distinctly different entities. In arteriosclerotic heart disease the patient is usually over sixty years of age and presents evidence of anginal or con-

gestive types of heart failure. The blood pressure is normal or subnormal, the heart is not enlarged, and the lesions of arteriosclerosis are confined to the arteries, and there is no striking involvement of the arterioles. In hypertensive cardiovascular disease, elevation of the blood pressure is a striking clinical feature. It may begin in the early thirties and make itself manifest in the fifth decade. The blood pressure will show a constant systolic level of 150 millimetres of mercury or more and a diastolic of 100 millimetres or more. The heart is enlarged. Essential hypertension is a disease of the small vessels of the size of the branches of the central artery of the retina. There is hypertrophy of the intima, obliteration of the lumen and hypertrophy and fibrosis of the muscle layer. The changes are found in all organs, including the retina. In the retina the arterioles are narrowed, having a copper wire appearance, the arterial light reflex is accentuated, giving the vessels a silver sheath, there is tortuosity and irregularity of the lumen. Compression of the veins by the crossed arterioles is pathognomonic. The disk is red and swollen and the margins are indistinct. There may be elevation of the disk, general oedema of the retina, scattered hemorrhages and the "cotton wool" areas of fatty and hyaline degeneration, sometimes arranged in stellate fashion around the macula. In the malignant phase of hypertension these changes are more intense. Should diabetes ensue in such a patient, the ophthalmoscopic changes are unaltered, since they depend on the hypertension and not on the diabetes. The fundus of the simple arteriosclerotic heart disease is in marked contrast. The optic disk is pale. Hemorrhages, transudates and white spots are absent; only the larger retinal branches may show slight narrowing. There is no arteriovenous compression, irregularity of lumen or increase in the light reflex. The changes in hypertensive heart disease are the result of a present or preexisting elevation of blood pressure; they bear no relation to the varying stages of renal insufficiency which may or may not be present. Hence such terms as albuminuric or nephritic retinitis are too comprehensive, nor is diabetic retinitis a distinct entity. Such terms should be discarded, also the term "arteriosclerotic fundus"; the correct description is arteriolar sclerotic retinitis. The retinal vascular sclerosis is usually progressive and, once developed, is permanent. The retinal lesions, however, are more evanescent, the areas of degeneration may tend to heal and hemorrhages disappear, but it is rare for the retina to become entirely normal. The retinal lesions may persist when the blood pressure is found to be normal, in which case they form clinical evidence of a pre-existing hypertension and account for an unexplained cardiac hypertrophy. In prognosis the so-called albuminuric retinitis has always had an ominous

significance. In general the prognosis of essential hypertension depends on many factors. The persistence of the height of the diastolic level of the blood pressure is of great importance.

Medullated Nerve Fibres Associated with Chorioiditis.

M. I. BERLINGER (*Archives of Ophthalmology*, September, 1931) reports a case of extensive medullated nerve fibres in the retina in a man of thirty-five who sought advice for loss of sight in the right eye during the previous year. Examination revealed vitreous opacities and large areas of opaque nerve fibres, especially on the nasal side. Here the fibres extended above and below far into the periphery. The numerous opaque fibres temporarily made a wide arc, leaving the macula and adjoining retina free. The macular region was hazy and oedematous. The blood vessels, though lost in places under the fibres, were normal. In some places they were only partially concealed. In the left eye the vitreous and macula were normal and the opaque fibres not so extensive; nasally they extended above and below to the far periphery. In the temporal region they arched widely, leaving the macula and adjoining retina free. New-born rabbits present no medullated fibres; non-medullated fibres are not developed until ten days after birth. There are three types of glia cells in nerve tissue: astroglia, microglia and oligodendroglia. The astroglia are found throughout the nervous system; the microglia, probably mesodermic in origin, are mostly phagocytic; and the oligodendroglia are seen in rows and are conspicuously in white matter. These cells have to do with the formation of the medullary sheaths of the nerve fibres. The three types are present in the optic nerve. Astroglia and microglia are present in the retina, but oligodendroglia are absent, hence the absence normally of medullated fibres. In the left eye, despite the extensive area affected, there was only a slight enlargement of the blind spot and a small degree of concentric contraction of the fields.

Epitarsus.

R. I. LLOYD (*Archives of Ophthalmology*, September, 1931) reports a case of epitarsus in an infant. At birth the cornea and sclera of each eye could be seen only by lifting up the upper lids and a large roll of conjunctiva, which normally should be tucked up in the fornix, but which was redundant and prolapsed over the eyeball. The upper lids were flaccid and could not be opened, even after the surgical removal of the superfluous conjunctiva. Both had been normal, no forceps being used; and there was no discharge. Epitarsus, congenital conjunctival apron, pterygium of the upper lid, *tarsus duplex palpebræ* and third eyelid are names used to describe this condition. The lower lid is sometimes involved, and defects of the tarsal cartilage or

coloboma of the upper lid may be present. Sometimes the margin is attached to the globe near the limbus.

Lens Extract.

E. L. BURKY AND A. C. WOOD (*Archives of Ophthalmology*, October, 1931) describe their process of preparing lens extract. The emulsion is twice put through a Sharples steam-driven centrifuge and filtered through a Bakefeld V filter for sterilization; it also contains a trace of cresol as a germicide. Not one of seventy-five normal persons gave a positive skin reaction. Of sixty-four patients with cataract, 17% gave a positive reaction. The majority of the positive reactions have been associated with post-operative inflammation after cataract extraction. Lens extract, when properly prepared, appears devoid of inherent toxicity.

OTO-RHINO-LARYNGOLOGY.

Latent Maxillary Sinusitis.

RALSTON PATERSON (*The Lancet*, July 18, 1931), in a paper dealing with latent maxillary sinusitis, gives the following summary and conclusions. Radiological examination of the accessory nasal sinuses often serves to draw attention to cases of antral infection. It may also disclose latent empyema of the antrum, not otherwise discoverable. These cases are those in which the lesions complained of are secondary complications of an unsuspected sinus lesion. Such complications fall into five main groups. The orbital group includes an extensive series of reported cases of defects of vision and orbital complications of serious moment. The cranial group includes those producing headaches, facial pain, or neuralgia of various types. The cerebral group is an interesting group in which disease simulating mental disease is found to be entirely due to sinus infection. The thoracic group has been frequently described recently, and consists of those cases of non-specific pulmonary infection called chronic bronchitis, bronchiectasis or asthma, which are secondary to unsuspected sinus lesions. In addition there is a miscellaneous group in which distant lesions are found unexpectedly to depend on the presence of trouble within the sinuses. Illustrative cases are quoted.

The Pathogenesis of Otosclerosis.

K. WITTEMAAK (*Archives of Otolaryngology*, August, 1931), discussing the pathogenesis of otosclerosis, concludes that the pathological process of otosclerosis in the labyrinthine capsule is caused by a venous stasis within the veins of a circumscribed region of bone. Similar reactions have not been observed in other bones of the skeleton. The fact that they occur exclusively in the labyrinthine capsule depends on the special property of the

endochondral ossified layer of the labyrinthine bone and the special distribution of the blood vessels. This distribution evidently contributes to an eventual stasis of the blood within the veins of the capsule of the bone which cannot be relieved by anastomoses with vessels in adjacent regions. In consequence, an extraordinary pressure must arise within the veins of the bone, which evokes the otosclerotic reaction. The hereditary factor is not observed in all cases of otosclerosis. The cases of hereditary otosclerosis may easily be brought into accordance with the theory of venous stasis. The reaction of the vessels in all probability is facilitated by an inherited inferior functional quality in the vascular system, especially within the walls of the vessels. Illustrative photomicrographs are given demonstrating the otosclerotic changes in man and the analogous changes produced experimentally in the hen.

Calcigerous Metaplasia of the Auricular Cartilage.

DAVID R. HIGBEE (*Archives of Otolaryngology*, July, 1931) attempts to review all of the cases of calcigerous metaplasia of the auricular cartilage reported, and reports a new case. He is of the opinion that the coincidence of senility and frost-bite in earlier life is so frequent as to suggest a direct relationship. The title "calcigerous metaplasia of the auricular cartilage" is used because it describes the changes occurring whether the deposit laid down assumes the typical formation of bony tissue or merely an infiltration of calcium.

The Cerebro-Spinal Fluid in Intracranial Complications of Otitic Origin.

A. B. ROSHER (*The Journal of Laryngology and Otology*, April, 1931), in a paper on the changes occurring in the cerebro-spinal fluid in some intracranial complications of otitic origin, points out some of the pitfalls in the collection of fluid. About one out of every five specimens which are sent to his laboratory have to be rejected owing to faulty collection. The routine tests to be carried out in order to detect intracranial complications are: (i) cell count, (ii) total protein estimation and qualitative globulin tests, (iii) bacteriological examination, (iv) estimation of glucose percentage, (v) estimation of percentage of chlorides. The minimum amount of fluid required for these tests amounts to about six cubic centimetres, and the tests should all be carried out without exception. The author concentrates his remarks on the changes to be found in the cerebro-spinal fluid in the conditions known as meningism, serous meningitis, localized meningitis and generalized meningitis. He asks what is the actual meaning of the terms "meningism", "serous meningitis", "sympathetic meningitis" *et cetera*, and furthermore, what changes in the

cerebro-spinal fluid, if any, are characteristic of these conditions. He accepts the definition of serous meningitis as an excess of cells occurring in a clear sterile fluid. From a laboratory standpoint he broadly classifies these cases into three types as being primary, secondary and tertiary stages of a generalized meningitis; at the same time, he realizes fully that the inflammatory process may be arrested between each of the stages, especially between the first and second. In the primary or invasive stage there is a slight increase of cells and protein, but the percentage of glucose and chlorides remains normal. In the secondary stage (localized meningitis) there is a rapid increase of the polymorphonuclear cells and protein. The organisms appear and the glucose usually diminishes, but the percentage of chlorides remains normal. In the tertiary stage (generalized meningitis) the percentage of chlorides diminishes. The author quotes Greenfield as stating that as long as the chlorides remain at their normal level there is a hope of cure by surgical intervention.

Fracture of the Nose.

FRANCIS W. WHITE (*The Laryngoscope*, April, 1931) pleads for the early treatment of fracture of the nose and condemns the old idea of staunching the flow of blood and putting a pad of gauze held down tightly over the injured nose by means of adhesive tape. Diagnosis, treatment and dressings are discussed; the author stresses the importance of over-correction so that the bone may be easily slipped back again into place. Contraindications to active treatment are profound surgical shock, concussion of the brain, possible fracture of the skull, extensive badly infected trauma with compound comminuted fracture, possibility of traumatic erysipelas being present, excessive emphysema and acute suppurative sinusitis.

Acute Streptococcal Infections of the Throat.

W. M. MOLLISON (*The Journal of Laryngology and Otology*, July, 1931), in a review of acute streptococcal infections of the throat, concludes that the *Streptococcus hemolyticus* is usually the cause of "acute streptococcal throats". He mentions the swimming bath as a common mode of infection; an infected bather leaves a trail, and others following pick up the infection either through the nose or through the pharynx. Patients who are carriers of the *Streptococcus hemolyticus* are not likely to become the victims of acute sore throat. The streptococcal lesion may attack and be localized to the nose, naso-pharynx or larynx. The lesion may lead to simple hyperemia, a membrane, an ulcer or a slough (gangrene). Treatment with antistreptococcal serum is strongly advised, unless there is some definite contraindication, such as a known sensitivity to serum.

Special Articles on Aids to Diagnosis.

(Contributed by Request.)

XIII.

X RAY EXAMINATION OF THE LUNGS.

ONE of the most important aids to the diagnosis of chest disease is a properly carried out radiographic examination with a report by a competent and experienced radiologist.

In addition to the chest examination, it is very desirable that the head sinuses should be examined in cases of obscure cough, especially when dealing with children. The best results in chest examinations are obtained when the physician and the radiologist can meet and discuss the clinical signs in conjunction with the X ray appearances.

An X ray picture is a record of the various densities of tissue through which the X rays have passed before reaching the sensitized surface. The lungs are particularly translucent to X rays, and any pathological alteration in them is shown by an alteration from the normal projection of the healthy lung. Thus a hydatid cyst or a tuberculous deposit is denser than the surrounding lung, and shows on the negative as a lighter area, because fewer rays have penetrated it and so less change is recorded on the sensitive emulsion.

It is as well to point out that lesions situated more than 2.6 centimetres from the surface of the lung can rarely be defined by ordinary clinical methods, yet on an X ray film they can be clearly depicted.

Before attempting the interpretation of the pictures of the abnormal chest, it is absolutely necessary to become familiar with the normal appearances of the chest at all ages. The normal chest shows an unexpected number of markings radiating from the hila, due mainly to the shadows cast by the larger bronchi and pulmonary vessels and by the bronchial glands. Recurrent colds and bronchitis add to this density. The radiologist should seize every opportunity to view the skiagrams of normal healthy adults and should thus gain a good mental picture of the appearances at all ages and in all occupations.

The healthy lung is of equal density on the two sides. Heart movement may cause slight haziness of the left base. In women the breast shadow will often give some increased density at the bases.

Various pathological changes cause varied appearances. A general increase in translucency with more horizontal rib shadows is seen in emphysema. Consolidation, fibrosis, new growth and abscess cause dense shadows. Annular shadows may be due to cavities or to localized pneumothorax. The mediastinal contents are displaced to the unaffected side in pneumothorax, new growth and effusion; the displacement is to the affected side in fibrosis and adhesions.

Fluoroscopy (or screen) examination is of limited use in chest work. It is mainly valuable in obtaining information as to diaphragm movements and to the amount of air entering the apices. It is also of use in the study of the mediastinum.

For the localization of hydatids, abscess or foreign bodies, screening is also of value. No opinion should be given on a chest from a fluoroscopic examination alone.

Radiography is of greater general use. As a routine postero-anterior, stereoscopic films give most information. If pathological change is detected, it may be necessary to take lateral or oblique films. Occasionally it may be necessary to resort to lipiodol injections for the demonstration of bronchiectases.

To obtain good chest radiograms it is necessary to have apparatus capable of taking films in one second or under. It is rarely possible to get good films with longer exposures. The smaller outfits are of use in the diagnosis of fluid, abscess or pneumothorax, but should not be trusted for the diagnosis of finer lesions. The Potter Bucky diaphragm should not be used. All examinations should be made with the patient erect.

High milliamperage, low kilovoltage and fractional second exposures with the tube at a distance of four feet or more are now generally used. With four and six valve machines giving 300 milliamperes at 55 kilovolts and a distance of six feet, a good film may be obtained in one-twentieth of a second, and at eight feet in about one-tenth of a second. With 100 milliamperes at 88 kilovolts and a distance of six feet a good skiagram is obtained in three-tenths of a second on a Snook machine. With a five-second unit giving 30 milliamperes at 85 kilovolts the exposures at four feet would be half a second. For lateral views of the chest the time alone is altered; increase the time by three and a half to four times the postero-anterior exposure. These exposures are for an average sized patient; heavier patients need an increase in time.

Double coated films with double intensifying screens are always used, and it is a good plan to use the fourteen by seventeen inch films.

With low kilovoltages the amount of secondary radiation from the patient's body is very small and insufficient to cause plate fog, so that a diaphragm funnel is not necessary.

In the skiagram the lung tissue should show clearly with the fine lines running right to the periphery. The vertebral bodies should not be distinguishable as individual units. If they appear as distinct units, the rays have been of too high penetration or the film overexposed.

Pneumonia.

In acute lobar pneumonias skiagrams are seldom taken, but in a skiagram the whole of one lobe is distinctly outlined as a dull area and the bronchial glands on each side are enlarged. Delayed resolution of a pneumonia is very suggestive of tuberculosis.

Bronchopneumonia shows irregular dull areas of consolidation with fuzzy edges scattered through one or both lobes. These areas are not so sharply defined as secondary malignant deposits.

When fever persists after a pneumonia with doubtful physical signs, the presence of abscess must be considered. An abscess shows as a dull area with dense centre and shades off toward its periphery. At times a fluid level may be determined in its centre with gas above the fluid. This level will alter with alterations in the patient's position.

Pleurisy.

In pleurisy a haziness is found over the affected area, with limitation of diaphragm movement on the same side. When effusion occurs we get a complete dullness with a level or crescentic upper margin, higher towards the lateral chest wall. The fluid alters its position with alterations in the position of the patient.

Examination in the upright position is essential; large collections of fluid may be missed with the patient recumbent, as the fluid will spread out over the lung and give a diffuse haziness over the whole lung.

Interlobar effusions show as dull areas along the interlobe. A level upper margin may be present, but encapsulated effusions may be under some pressure and not show this straight upper line.

Thickened pleura gives a dense shadow often with sharply defined areas, and may occur anywhere over the lung shadow.

Pneumothorax.

In pneumothorax the affected side is clear, and the collapsed lung may be seen centrally with the heart displaced to the unaffected side by the elastic pull of the healthy lung. When fluid is present in addition and the patient is shaken, it can be seen to splash about in the cavity.

Hydatid Disease.

A hydatid cyst casts a rounded shadow with sharply defined edges. It may occur anywhere in the chest. When occurring near the mediastinum or in the upper lobes, it is impossible definitely to distinguish it from a primary new growth of the lung.

Syphilis.

Gumma in the perihilar regions is not uncommon. It is indistinguishable from carcinoma starting near the hilum. A type indistinguishable from the appearances of chronic bronchitis is also described. A Wassermann test is indicated.

Tuberculosis.

Tuberculosis in the adult nearly always starts in the upper lobes. Perihilar and basal tuberculosis is extremely rare. A mottling of the upper half of the chest is practically always tuberculous, while lower half lesions are generally due to catarrhal lesions, abscess or bronchiectasis.

The early tuberculous lesion is shown as a fluffy mottling in the lung periphery. Fine striae appear about the mottling, due to the formation of fibrous tissue. In acute and milary tuberculosis this fine mottling increases in distribution and may involve the whole of both lungs, even in the absence of many physical signs.

In active lesions many of the tuberculous lesions coalesce and may break down in the centre to form cavities. It is not always possible to distinguish between active and quiescent lesions, but an experienced observer becomes very accurate in his interpretation. Lesions with much fibrosis and with clear-cut outlines are generally quiescent.

In children tuberculosis usually commences as a small area at the periphery and rapidly advances. In children most lesions occurring deep in the lungs are due to bronchiectasis. If the child has a long history of illness, it is almost certain that the lesion is not a tuberculous one.

Silicosis.

Silicosis is a fibrosis due to the irritation caused by the solution of silica in the peribronchial spaces. Small fibrous nodules are scattered through both lungs. The nodules and striae are not caused by the X ray image of the collected dust particles themselves.

A well established silicosis gives X ray appearances somewhat similar to milary tuberculosis, but in the latter there is generally fever, while the former is afebrile. Silicosis does not occur in workers who have been working less than eight or ten years in silica dust. Dust is dangerous only in proportion to its silica content. Advanced silicosis may be present without a single physical sign. A tuberculosis advances very rapidly when it is superadded to silicosis.

Silicosis is not the only condition in which fibrosis is found in the lung fields. Chronic tuberculosis, asthma and cardiac disease are all responsible for a bilateral diffuse fibrosis, but the small nodules are not in evidence in these conditions as they are in silicosis.

The practice of interpreting a fibrosis as a silicosis just because the man says he has been a miner, leads to many mistakes.

Bronchiectasis.

Bronchiectasis can in most cases be demonstrated in stereoscopic films, and it is rarely necessary to use lipiodol to establish the diagnosis. The transglottic method of lipiodol injection is simple and disturbs the patient very little. The injection through the crico-thyroid membrane must be made with care, as several cases have been seen in which the lipiodol has been injected outside the trachea. Too much lipiodol is usually injected; twenty cubic centimetres should be ample.

In the multiple small type of bronchiectasis lipiodol is of value in demonstrating the extent of the disease. It is most valuable in demonstrating a bronchiectasis hidden by the heart shadow.

Bronchiectasis generally follows some condition like whooping cough or some acute infection of the lung, but in all probability there is some antecedent weakness or defect of the bronchial wall. The dilatation may be spherical (and reach great size), saccular or diffuse. The large solitary bronchiectases are generally in the perihilar region, an uncommon site for tuberculous cavities.

Differentiation is difficult from abscess and in some cases from gangrene; in the latter the lung destruction is rugged and irregular and the characteristic putrid odour is of help.

Various rare lesions occur, such as actinomycosis and yeast infections; it is not possible to distinguish these from tuberculous lesions by X ray examination.

Primary Malignant Disease.

Primary malignant disease is generally unilateral. In the bronchogenic type it commences in the bronchus and spreads along the bronchial tree, giving the appearance of a dense mass with definite infiltration along the bronchi. Rounded nodular areas, especially in the upper lobes, are seen in the nodular type of carcinoma. They are clear cut and rounded, and at times cannot be differentiated from hydatid disease.

Malignant disease of the pleura gives a dense shadow, as in ordinary pleurisy. It tends to advance and effusion is common. The history is of importance in differentiation, for example, recurrent attacks of pleurisy over a long period favour a simple lesion.

Metastatic deposits are distinguishable as multiple small shadows through one or both lung fields, and there is little surrounding reaction. A less common form starts at the hilum and forms large masses, which gradually increase in size and involve the mediastinum.

Foreign Bodies.

Foreign bodies generally lodge in the right bronchus. The appearances differ according to whether the foreign body occludes the bronchus or not. If it acts as a "ball-valve", air may pass it and remain in the distal lung, giving a localized emphysema. When there is obstruction, the distal lung becomes dense and the respiratory movements on the affected side are decreased. Consolidation and abscess are frequent complications.

J. G. EDWARDS, M.B., Ch.M. (Sydney),
Honorary Radiographer, Sydney
Hospital.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE MEDICAL SECTION OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, Adelaide Street, Brisbane, on September 14, 1931, Dr. S. F. McDONALD in the chair.

Achlorhydria.

DR. L. J. J. NYE read a paper by himself and Dr. C. H. SIFFE entitled: "A Consideration of Achlorhydria, with a Review of 100 Cases" (see page 189).

DR. ELLIS MURPHY commented on the few cases of rheumatoid arthritis mentioned in Dr. Nye's paper; in his own series this condition contributed a far greater proportion.

DR. EUSTACE RUSSELL expressed great interest in the series labelled "cold intolerance syndrome". These cases were worthy of further investigation and of a happier nomenclature. He thought a number of cases of achlorhydria were congenital and that the patients possessed a lifelong predisposition to certain diseases. He was far from convinced about the so-called "pernicious anaemia". He had tried the administration of hydrochloric acid in patients suffering from asthma, but with no success. It was, however, a good tonic in any case of illness associated with absence or deficiency of free hydrochloric acid.

DR. NOEL GUTTERIDGE found his own results comparable with the series presented. Lately he had worked on the estimation of the hydrogen ion concentration of stomach contents by the electrolytic method and found very interesting results, differing from those estimated by Toffler's reagent. Where the latter showed "acid" reaction, the pH reading might be 0.7 (neutral) or even 0.8 (alkaline) in cases of obstruction. He had found achlorhydria associated with migraine from which the patient recovered sometimes by administering hydrochloric acid.

DR. KEITH ROSS was far from being convinced of the value of the results of fractional test meals. The contents of his own stomach had been tested on three occasions within three months. On the first occasion a condition of achlorhydria had been demonstrated, on the second a normal reading had been obtained, and on the third a state of hyperchlorhydria existed. He noted with interest that there was no case of gastric ulcer in Dr. Nye's series.

DR. C. A. THELANDER believed the tests too uncertain to yield much information as to the connexion between achlorhydria and such other diseases as pernicious anaemia. Physicians should go further and investigate why there was no free hydrochloric acid. The secretion of hydrochloric acid required the dissociation of sodium chloride. The potential energy required for this in neutral or alkaline media was too great, and it was therefore necessary to bring in some inorganic acid or acid salt to facilitate the reaction. As carbonic acid was too unstable, phosphoric would be the acid used, and it was known that acid phosphates circulated in the blood. Might not the link then be some disorder of phosphorus metabolism which could effect at the same time the excretion of hydrochloric acid, the manufacture of red blood cells and the nutrition of the central nervous system? This was the line of research he considered most promising.

DR. ALEX MURPHY drew attention to the fact that if two tubes were introduced into the stomach at different levels, the gastric juice from one might show achlorhydria, while that from the other showed a normal curve.

MR. BENNETT, Director of the College of Pharmacy, Queensland, commented on the amount of energy required for the excretion of hydrochloric acid. If hydrochloric acid was excreted as such, the thermal energy alone would require 1,000 grammes of starch. He believed it was not excreted as such, but in combination or association with organic or inorganic bases which were reabsorbed. He favoured rather the pH calculation than the use of Toffier's reagent.

DR. J. BATTAGLIA commented on the variation of disease associated with absence, deficiency or excess of acid.

DR. S. F. McDONALD, in conveying the thanks of the meeting to Dr. Nye, suggested that the "cold intolerance" group might be closely allied to melancholies. These were often associated with visceroptosis and tended to recover spontaneously—hence the success of surgery in visceroptosis.

DR. NYE briefly replied, admitting the difficulty and uncertainty of some of the results. Still, the work was worth while. His "cold intolerance" group were not cases of psychosis, but he included them in the "nervous" group.

Medical Societies.

THE MEDICAL DEFENCE SOCIETY OF QUEENSLAND.

THE annual meeting of the Medical Defence Society of Queensland was held at the British Medical Association Building, 35, Adelaide Street, Brisbane, on January 14, 1932, DR. A. H. MARKS, President, in the chair.

Annual Report of Council.

The annual report of the Council for the year ended December 31, 1931, was presented and adopted on the motion of the President, seconded by Dr. W. N. Robertson. The report is as follows:

Your Council has pleasure in submitting annual report for year ended December 31, 1931.

Membership.—The membership of the Society is now 380. During the year 25 new members have joined. Our losses have been: 12 left the State; resigned, 2; deceased, 5. There are also 12 who have allowed their subscription to lapse for the past two years.

The Council regrets to record the following losses which have been sustained by death: Dr. J. Espie Dods, Dr. H. T. Johnson and Dr. T. Howard Morgan, of Brisbane; Dr. H. E. Brown, of Rockhampton; and Dr. Herbert Evans, of Townsville.

The Council would also like to place on record its appreciation of the good work done for the Society in the past by Dr. J. S. Clowes, who resigned his membership during the year owing to his retiring from practice.

Office Bearers and Council Elected for 1931.

President: Dr. A. H. Marks.

Vice-President: Dr. D. A. Cameron.

Honorary Secretary: Dr. Neville G. Sutton.

Honorary Treasurer: Dr. R. G. Quinn.

Auditor: Mr. R. G. Groom (Chartered Accountant, Aus.).

Councillors: Dr. W. N. Robertson, Dr. A. G. Anderson, Dr. Wilton Love, Dr. S. F. McDonald, Dr. Kerr Scott, Dr. H. S. Waters, Dr. A. B. Carvosso.

Medico-Legal.—Eight cases were submitted to the Council during the year, three of which were referred to the Society's solicitors. The other cases were dealt with by the Council and whatever assistance possible under the circumstances was rendered.

From time to time consideration has been given to the question of the advisability of altering the constitution of the Society to provide for the indemnification of members against damages, as well as costs, in any case which may be defended and lost, but owing to the heavy expense involved, so far this has been found impracticable.

The result of investigation has been that there would be no advantage in the Society arranging such an indemnity, compared with the protection which each member could obtain under an industrial insurance policy, as the quotations received so far have been in the vicinity of £5 per member *per annum* for an adequate amount of cover.

It is pointed out that the Medical Defence Society of Queensland was formed for the purpose of helping its members to resist unjust or illegal demands. As at present constituted it is not a guarantee society. If any alteration were made in its Memorandum and Articles of Association to provide for the indemnification of members, it would necessitate a very considerable increase in the subscription, which is at present 10s. 6d. *per annum*.

It has been proved by this and similar other societies that attacks upon individual members of the profession have been almost invariably defeated when opposed by the united profession, and it is this moral support which is of such value to the members of the Society.

Apart from its assets, the Society holds a guarantee of £1 per member, which constitutes the total amount available from this source.

Assets.—The total assets of the Society now amount to £3,284 10s. It will be noted that on the year's operations there was a deficit of £35 18s. 10d. This was due to the cost of legal expenses, which amounted to £399 8s. 10d. Our income has been derived mainly from the following sources: Entrance fees and annual subscriptions, £230 2s.; interest on investments, £199 0s. 3d. In addition to the amount of £399 8s. 10d. for legal costs, the expenditure for the year was £47 1s. 3d. for office and general expenses, and Federal income tax £19 18s., making a total of £466 8s. 1d.

(Signed) ALEX. H. MARKS,
President.

NEVILLE G. SUTTON,
Honorary Secretary.

Financial Statement.

The financial statement and balance sheet were presented and adopted on the motion of the Honorary Treasurer, Dr. R. G. Quinn, seconded by Dr. Kerr Scott.

Election of Councillors.

Dr. S. F. McDonald, Dr. D. A. Cameron and Dr. R. G. Quinn were unanimously reelected members of the Council.

Election of Auditor.

Mr. A. E. Suffolk, A.C.A. (Aust.) was elected auditor for the ensuing year.

Obituary.

WILLIAM ARTHUR KERR.

THE death of Dr. William Arthur Kerr at the early age of thirty-three years has been the occasion of much regret among a large circle of friends and among the graduates of his time. He had gone to England and the Continent in search of health and was returning to Australia full of hope for the future when he was stricken with the illness that caused his death.

William Arthur Kerr was the son of Mr. W. R. Kerr, of West Maitland, New South Wales. He studied medicine at the University of Sydney and graduated Bachelor of Medicine and Master of Surgery in 1922. After graduation he served for one year as resident medical officer at the Balmain and District Hospital. He commanded the respect of those with whom he was associated, both for his clinical knowledge and for his devotion to duty. After leaving the Balmain Hospital he took up practice at Crookwell, New South Wales, succeeding to the practice of Dr. F. Justin McCarthy. Here he soon established himself in the confidence and affection of the people. He had a reputation for keenness and tireless energy. He took an active part in the life of the town and district. About two years ago his health began to fail and he went to the Old Country. After his return he was admitted to the Royal Prince Alfred Hospital, but the outlook was not good and he died suddenly on January 10, 1932.

William Arthur Kerr has been described as a "thoroughly good and loyal Australian", full of vitality and a good comrade. It is as such that his friends will remember him. In 1923 he married Elaine Marjorie, daughter of Mr. W. G. C. Millard, of Wollstonecraft, New South Wales. Much sympathy has been expressed to his wife and young family who survive him.

PATRICK CHARLES HIGGINS.

DR. PATRICK CHARLES HIGGINS, who died on November 20, 1931, was born in 1872 at Bombay, where his father was Chairman of the "Crawford" Markets. He was educated at the Jesuit Brothers' School in Bombay, and commenced his medical course at Guy's Hospital, London, in 1889, where he gained the diploma of membership of the Royal College of Surgeons and became a licentiate of the Royal College of Physicians. He was appointed a resident medical officer at Guy's Hospital, and later at King's Lynn, England. He travelled widely as ship's medical officer and as medical officer to mining camps in all parts of the world. He held hospital appointments at the Devon Hospital in Tasmania, at Longreach, Winton and Mount Elliot in Queensland. He also practised at Townsville, Gatton and Murgon. He was medical officer of health in several of these towns and also at the Barambah settlement out of Murgon. He served in Egypt during the war for eighteen months.

Patrick Charles Higgins was a lover of literature and read widely. He was a roving spirit and had the self-contained man's ability for establishing himself in new surroundings. He possessed a wide understanding of humanity, a most precious gift in the practitioner of medicine.

ERNEST HAROLD BRITTEN.

WE regret to announce the death of Dr. Ernest Harold Britten, which occurred on January 19, 1932, at Melbourne, Victoria.

Correspondence.

STERILIZATION OF THE UNFIT.

SIR: From the financial standpoint, Australia would probably soon be restored to prosperity if the franchise

were confined to a few electors with special qualifications, but in regard to the "sterilization of the unfit", it is satisfactory to know that our legislators are elected on the universal franchise, as a knowledge of the secret history of very many families will reveal even amongst our physicians, clergy, lawyers and politicians, one or more members who would have to be compulsorily castrated. The castration of those who are already permanently segregated would rob them of an internal secretion and serve no good purpose. Who is to set the limits of castration of those outside institutions? I know of a family of eight or nine children. The father was a leading citizen and the mother an extremely fine and capable woman. Both were of excellent habits and lived very happily together, enjoying excellent health in every way until ripe old age. Two of the children are dead of tuberculosis, another is insane, and the remainder of the family is more or less erratic. Should these perfectly normal parents have had their children all castrated in childhood? If a system of eugenics is to be satisfactorily carried out, it must be in a popular form, and this may be achieved by mating up the unfit so that they could live perfectly normal physiological lives, but the Fallopian tubes of the female would be closed by operation. Thus the high cost of living would be solved for the couple, and the community would be rid of future undesirable stock. The females of normal families would thus continue the race and would select suitable fathers for their children.

Yours, etc.,

R. A. PARKER.

"Cottesbrooke",
140, Sackville Street,
Kew, Victoria,
December 29, 1931.

THE WIDAL TEST.

SIR: There are several points in Dr. Walch's admirable article on "The Widal Test" (THE MEDICAL JOURNAL OF AUSTRALIA, December 26, 1931) which are a little doubtful or on which we would like fuller information.

(1) Under "collection of blood" it is stated that blood "must" be taken into a venule or test-tube free from chemicals. This is, of course, the usual method. For some years I have been in the habit of performing the test upon the plasma from citrated blood in the not infrequent case in which the physician wishes to know the result as soon as possible. Citrated blood can be centrifuged immediately and a result of diagnostic value had in one hour instead of one day. If the titre of the plasma is one in 160, the titre of the serum will usually be one in 320, apart from this I have not found the results from serum and citrated plasma different. I have used oxalated plasma once only; it gave a negative result while the serum was positive. When a rapid result is important, this method is very valuable. I have not seen any reference to the test on plasma. Are there any real objections?

(2) It is not generally known that agglutinins are not affected by drying, perhaps some practitioners could dry blood better than take off the serum. Dried blood will not get infected, but the microscopical test is all that is worth doing on it.

(3) I do not know any clinical pathologists who are in the habit of obtaining titres over one in 1,000. One in 320 to one in 640 is the usual result at the height of the disease. Widal described one in 500 or over as an "intense" reaction. Probably he took less than one in 1,000 as definitely diagnostic of typhoid infection. What is the usual titre?

(4) I think Dr. Walch is rather misleading on the all-important subject of inoculation agglutinins. However, this is not as important practically as it ought to be on account of our particular type of "public health". In the United States of America insurance companies think it worth while to spend considerable sums of money advertising the value of "T.A.B." It is generally believed that the "T.A.B." given during the war is still important in

interpreting results. It is not. As Dr. Welch says, agglutinin titre rises after "T.A.B.", much as in typhoid. It reaches a maximum about a fortnight after the second injection and then falls, not to a constant level of one in 320 to one in 640, but to zero, which is almost always reached after three to four months. Rarely it lasts longer. As far as I know, Harrison's case of four years is the longest on record. This does not correspond with the length of the actual immunity. The important observation on this point is Wassermann's, that a very small dose of vaccine will rapidly raise the titre in a person who has been vaccinated previously, that is, his body knows how to make antibodies much quicker. Probably immunity lasts an average of three years—much longer than a positive Widal.

How, then, may infection agglutinins be distinguished from inoculation agglutinins? This is the only real diagnostic difficulty.

(a) History of past vaccination. If not in past six months it is very probable that a titre of even one in 40 points to typhoid infection.

(b) A rising titre in successive tests is diagnostic of infection. In this connexion a negative result in the first week is of extreme value.

(c) A vaccinated person generally (but not always) reacts to paratyphoid A and/or B as well as to typhoid. Hence, if a case reacts to these, the physician should review the case, but he must keep an open mind, as it may be due to cross agglutination which, however, is not common. Cross agglutination is commoner and stronger in typhoid than paratyphoid fever. In the former the titre to the paratyphoid may even be higher than to the typhoid bacilli without any paratyphoid infection being present. I wonder if any clinical pathologist in Australia averages even one case of cross agglutination in a year. Is the reason for the rarity of the paratyphoid fevers in Australia known?

The physician, and not the clinical pathologist, is the only one who can interpret the result for the particular case. To him, far from being "often an unsatisfactory method of confirming a diagnosis", it is probably more usually satisfactory than any other specific test.

Yours, etc.

G. R. OSBORN.

Boulder, Western Australia,
January 1, 1932.

ORALLY ADMINISTERED INSULIN.

SIR: Dr. Basil Corkill's article describing experimental proof of the inefficacy of orally administered insulin is a further reminder to practitioners that oral preparations of any sort are valueless in the treatment of diabetes.

Even in these enlightened days, however, one sees advertisements urging the use of various tablets in the treatment of diabetes. Nor does the matter end in mere advertising. Some months ago a representative of a drug importer approached me regarding some antidiabetic tablets, said to present "the active extracts of fresh pancreas glands in combination with a yeast of considerable glycolytic power, very rich in vitamins". I briefly gave my views on the uselessness of treatment of that type, but agreed to test some samples of the preparation on patients under hospital régime. I could find no evidence that the tablets had any effect on hyperglycæmia in the diabetic patients whom I tested.

With the samples the representative gave me a type-written list of names of twenty Melbourne physicians who "regularly prescribe" these tablets. Being of an inquisitive turn of mind, I wrote to each of these men to ask their views, and especially any detailed results, such as blood sugar records. I much appreciated the promptness of their replies. They were very interesting replies, too. "A batch of four elderly cases thought they felt slightly better, but there was no alteration in the urinary sugar." "I used it four years ago, but did no blood tests." "Some years ago in a few cases, but found it unsatisfactory." "In one case three or four years ago; no blood tests." "In a few cases the urinary sugar seemed less." "The agent

has been drawing on his imagination, as I have never used that product in my practice." "The agent is in error; I have not given it an exhaustive trial." "Some considerable time ago I used the tablets; now have adopted the present-day scientific method." "In one case only I used it; the patient thought she improved, but I saw nothing definite." "One carefully observed case, a near relative who disliked hypodermic injections; the tablets had little or no effect." Results such as these would hardly induce anyone to use the tablets. Not one of the men written to could truthfully be said to "regularly prescribe" the preparation, and such statement was, to say the least, very misleading.

It is a great pity that useless substances should be put forward as suitable remedies for a chronic disease such as diabetes, and a still greater pity that the names of reputable medical men should be wrongly and unjustifiably used by the vendors in the attempt to foist the substances on unsuspecting patients. As Lawrence says, it matters little in minor ailments if the patient wastes his money on "patent remedies", but this may have serious consequences in a severe disease like diabetes which would otherwise readily respond to insulin treatment.

Yours, etc.,

A. R. SOUTHWOOD.

Adelaide,
January 4, 1932.

COMPARISON OF THE KLINE AND WASSERMANN TESTS.

SIR: Your contributors of this article end their summary with: "It is an advantage to test a serum by more than one method."

It will be of interest to have that sentence explained. Wherein lies that advantage? If the serum is tested by two or three methods, and the results vary, what is the procedure? What explanation is given when reporting the results to the practitioner?

Yours, etc.,

"PRACTITIONER".

January 5, 1932.

TRAUMA AND ORGANIC VISCERAL DISEASE.

SIR: In deference to Dr. Corlette's criticism, I have attempted to expand my somewhat abrupt denial of the applicability of Boyle's law to intraabdominal conditions into a more reasoned line of argument.

The abdominal contents, taken as a whole, can be compared roughly to a colloidal mass composed of solid, liquid, and gaseous phases on a gigantic scale. As such they conform approximately to the hydrostatic and hydrodynamic laws of a viscous fluid, but in a distinctly limited manner, as the "phases" are not equally dispersed, and the solid "phases" are subject to restrictions in range of movement, and, though representing the external phase of a colloid, they are discontinuous, and are of a varied and variable consistence.

Definite departures from the normal physical reactions of a true fluid are exemplified by: (i) The absence in the normal abdomen of the transmission of a wave of percussion, a phenomenon which does appear in the presence of ascites. (ii) The fact that a rupture of the limit-wall of the abdominal cavity is not invariably the first effect, if any, of violence impressed upon the abdomen from without. (On the other hand, a hydatid cyst offers an example of the operation of purely hydrostatic laws, in that a daughter cyst cannot be injured by external violence until the wall of the parent cyst has ruptured.)

Therefore, although the normal equilibrium of the abdominal contents is determined mainly by hydrostatic laws, these examples show that sudden disturbances of that equilibrium are not transmitted sufficiently quickly and generally to produce the immediate results which appear when the reacting medium is a true fluid.

The gaseous state is represented in the abdomen by a number of bubbles isolated and enclosed within hollow viscera which are distributed through the mass of the abdominal contents. These bubbles conform to Boyle's law in relation to their immediate environment. We have already seen that disturbances of pressure equilibrium are not conducted immediately throughout the abdomen. Therefore, it does not follow necessarily that a volume change in one bubble is compensated immediately by a complementary volume change in other bubbles. Also the anterior abdominal walls and the diaphragm are not rigid, and can provide rapid adjustment in relation to volume changes within the abdomen. I fail to see, therefore, that Boyle's law has any general application to intraabdominal conditions.

The objective of my previous letter was not to elaborate a theory of intraabdominal physics. Dr. Corlette has essayed to prove a negative proposition, that simple muscular exertion cannot cause intraabdominal trauma. My letter was written to contest this thesis. Dr. Corlette's proof of his proposition was based on a consideration of static conditions only. My contention was that if dynamic conditions be considered, then simple muscular effort may be a cause of intraabdominal trauma. This line of reasoning did not bring in any new idea, because Dr. Corlette has suggested in his discussion of the effects of external violence that a momentum imparted to the contents of a hollow viscus might cause a momentarily uncompensated force sufficient to rupture the wall of the viscus. My contention was that muscular effort may lead to a sudden alteration in the shape of the abdominal cavity, this to sudden redistribution of the viscera in that cavity, and this to the appearance of a momentarily uncompensated force sufficient to rupture diseased tissue or cause an internal herniation. Two possibilities of such alteration in shape of the abdominal cavity were mentioned. First, contraction of the abdominal muscles may change the contour of the anterior abdominal wall. This could only be of importance if the tone of the abdominal muscles be low. Secondly, the effect of sudden relaxation of the diaphragm in expiration during effort was discussed. A third possibility may be mentioned, namely, change of posture during effort. In a stooping posture the abdomen is relatively deep in the dorso-ventral diameter. In the erect posture the lumbar spine is relatively nearer the anterior abdominal wall. This relative movement is still more marked in the change to the posture of exaggerated lordosis adopted in lifting a heavy weight above the level of the hips.

This argument, pointing out a possible mechanism whereby muscular effort may be a cause of abdominal trauma, represents my constructive contribution to the discussion.

Yours, etc.,

H. K. FRY.

Adelaide,
January 6, 1932.

THE WORSHIP OF THE TEST TUBE.

SIR: It is a matter of common knowledge, I think, that among the extremely devout, during the observance of their ritual, between the hallelujahs and hosannahs of the high and holy, a number of the worshippers pass into a temporary trance, when for a time they lose touch with reality. This is not only to be observed among dervishes and the devotees of certain Oriental cults, for apparently test tube worshippers have their ecstatic moments too. This would explain why Dr. John Bostock, fresh from the High Altar of Biochemistry, where he was officiating in the latest liturgy of blood bromide estimation, appears to have misread my letter in your journal dated December 12, 1931. It would explain why, in his rejoinder published on January 16, 1932, he imputes to me the suggestion that test tube aids to diagnosis should be curtailed in favour of the old intuitive methods.

I did not "deplore the passing of the old time clinician who could dispense with modern aids" *et cetera*; nor did I state that "wholesale and often useless use of the test

tube methods sends patients to the quacks". But it does send neurotics to the quacks. And that is where Dr. Bostock missed the point in my letter, namely, that when medical students receive no instruction in psychological medicine and methods, they, as clinicians, will tend to fall too readily into the habit of laboratory investigation of cases (neurotics) whose symptoms they do not understand.

Edward Strecker, in a recent discussion on psychiatric education, has classified the "psychological" segment of general medical practice thus:

- A. The neuroses.
- B. Organic disease seriously complicated by neurotic additions.
- C. The psychopathological implications of chronic organic disease.
- D. The mental aspects of convalescence.
- E. Complete or partial psychopathological problems in children.
- F. Unadulterated psychoses.

And he states without hesitancy his belief that "the first five of these groups make up more than 75% of the clientele of the general practitioner".

My contention is that the Melbourne graduate is not properly equipped to deal with such a group of patients; and further, that too great a reliance upon test tube methods of diagnosis will hinder rather than help him. I do not deny for one moment the necessity for laboratory aids in diagnosis; but I do claim that to be successful the clinician must know when to use them and how to interpret them, and that medical education in Melbourne at present tends to convert its graduates to the worship of the test tube to the exclusion of any psychological approach to illness.

I agree with Dr. Bostock that patients do not object to test tube diagnostic aids *per se*. I would go further: neurotic patients welcome them and in many cases demand them. Is there is any neurotic complaining of headache who has not asked his doctor to X ray his head, or any neurasthenic with a pain in the stomach who has not implored his medical attendant to let him have a fractional test meal? And how often have the neurotics' symptoms been more firmly "fixed" by the clinician's too ready acquiescence in their demands?

Dr. Bostock says that I should ask for more tests, and he has very kindly supplied one, *à chaque saint sa chandelle!* I refer to his interesting and illuminating article on bromide therapy and intoxication, published in the same issue of your journal as his letter. But this is surely playing into the hands of the neurotics whose staple pharmacological diet consists of bromide. I foresee the time when our neurotics, having scrutinized their prescriptions, will hurry back to our consulting rooms to demand of us a series of blood bromide investigations!

To Dr. Bostock such patients may be geese who lay golden eggs; but sooner or later, above the hallelujahs of the test tube worshippers, they will hear the quackings of the quacks and, as birds of a feather, they will flock to the lucrative barnyards of the osteopaths, chiropractors, faith healers and irido-diagnosticians. *Sic eunt fata hominum!*

Yours, etc.,

REG. S. ELLERY.

14, Collins Street,
Melbourne,
January 18, 1932.

NOISE.

SIR: I trust that Dr. J. S. Purdy will not think I speak out of my turn when I say that he was indiscreet in his address as printed in the issue of the journal for the ninth instant, when he attempted to parodize the Litany of the Anglican Prayer Book. Whatever noises the City of Sydney may have are their own pigeon, and it behoves men in his particular department to amend such nuisances.

Yours, etc.,

F. TIPPING.

Bogan Gate,
January 11, 1932.

DIATHERMY AND ENLARGED PROSTATE.

SIR: With reference to Dr. Kent Hughes's letter in January 16 issue of your journal, I would like to refer to a paragraph of a paper published by me in this journal, June 23, 1928.

One of the most difficult of cases we are called upon to treat is the chronically infected prostate. As a focus from which other disease is produced this is commoner than is usually recognized. Whether the treatment be for infection or enlargement alone, various methods have been employed, such as massage, X rays, high frequency current and diathermy. Having tried all the various combinations of them, none have given me such good results as diathermy with an occasional dose of X rays. One very seldom fails to give relief to the sufferer who has to be in and out of bed half a dozen times during the night. In February, 1925, a pilot came with exophthalmic goitre. After clearing up tonsils and nasal trouble, he failed to improve; massage of the prostate revealed a very definite infection he was unaware of. With the aid of a vaccine and diathermy he rapidly got well, became reinstated on his job, from which he had been invalided, and has remained well since.

There is a stage in prostate enlargement when bladder infection sets in owing to retention. This infection rapidly causes obstruction due to increased swelling of the prostate from that infection. It is at this stage that diathermy is so useful, as it rapidly reduces this inflammatory swelling, allows the bladder to be emptied, and with suitable antiseptics the blood and pus rapidly clear up.

I have had several patients who were in this condition some years ago and who are still leading very comfortable lives. In only one case can I say that I failed to get some beneficial results, and that turned out to be malignant. In inoperable cases in the aged much benefit can frequently be derived. Until diathermy has been given a good trial in these cases, one is hardly likely to believe how much benefit can be derived from its use, especially if combined with occasional massage and X ray treatments. Where operation is advisable and there is bladder infection with ascending pyelitis, these patients can be brought into much safer operable risks by this treatment.

Yours, etc.,

SYDNEY PERK.

12, Collins Street,
Melbourne,
January 20, 1932.

Books Received.

THE GENESIS OF CANCER, by W. S. Handley, M.S., F.R.C.S.; 1931. London: Kegan Paul, Trench, Trubner and Company. Demy 8vo., pp. 277, with illustrations. Price: 21s. net.

Diary for the Month.

FEB. 9.—New South Wales Branch: Ethics Committee.
FEB. 12.—Queensland Branch, B.M.A.: Council.
FEB. 16.—New South Wales Branch: Executive and Finance Committee.
FEB. 23.—New South Wales Branch: Medical Politics Committee.
FEB. 24.—Victorian Branch: Council.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes, sought, etc., see "Advertiser," page xiv.

ECHUCA DISTRICT HOSPITAL, ECHUCA, VICTORIA: Resident Medical Officer.

THE BENEVOLENT SOCIETY OF NEW SOUTH WALES: Honorary Officers.

THE WOMEN'S HOSPITAL, SYDNEY, NEW SOUTH WALES: Junior Resident Medical Officers (2).

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associated Friendly Societies' Medical Institute. Mount Isa Mines. Toowoomba Associated Friendly Societies' Medical Institute. Chillagoe Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL are advised, in their own interests, to submit a copy of their agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

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